

MAY 1960

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National Safety News, May, 1960



National SAFETY NEWS

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MAY 1960

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THE COVER

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EDITORIAL

Let's Hold a Meeting!

MEETINGS come in for plenty of discussion, much of it critical. Some of it, no doubt, is deserved. The time wasted in meetings of all kinds in the course of a year would amount to a staggering total.

But meetings, in spite of inefficient handling, do germinate many a good idea and stimulate much important action. They rank among the important communication tools. It would be difficult to carry on a safety program without regular meetings at various levels.

Unfortunately, many safety meetings are held principally because it's the first Tuesday of the month and that's the scheduled date. There's nothing on the agenda but a few minor housekeeping items and two or three routine accidents.

It takes a lot of energy, ingenuity, and enthusiasm to keep programs interesting and resultful month after month. A good movie or slide-film or an entertaining speaker for each meeting will help, but they're not enough to keep the program functioning.

Sometimes the trouble with the meetings may have its roots in the safety organization itself, or even higher up. A recent letter from an employee of a large corporation (position not given) points out some problems that are by no means limited to his own organization.

Their safety meetings, he says, have been poor. The safety director is not entirely responsible; management does not give him enough latitude to organize an effective program. So the meetings have become routine.

Employees are reluctant to speak up in the meeting and the suggestion box is little used. Any suggestion that involves expense gets scant consideration. Employees listen to exhortations about being careful in their work, helping the company make a better record, reminders that accidents are costing the company too much, and so on. That line has worn pretty thin.

The company's operations are rated as fire-hazardous, yet attempts at training employees in fire-protection techniques have been spasmodic and half-hearted. Three years ago the plant had a fire school. Since then the company has added some fine, up-to-date fire-fighting equipment. However, our correspondent feels that few employees could operate them without reading instructions. In the meantime, many new employees have been added to the working force and some of the veterans could stand a refresher course.

First aid is another neglected subject. Four years ago the company held first aid classes. Since then the subject has seldom been mentioned. Few employees know how to stop bleeding or apply artificial respiration.

For transportation, most of the employees use individual cars or car pools, but off-the-job safety receives little attention. Highway patrolmen are available to talk to employees on highway safety but none has been invited to the plant in the past five years.

With all the good films and other visual aids available they are seldom used. The impression has been growing among employees that management isn't sufficiently interested to give more than passive approval to something that might help to keep down costs.

Safety, admittedly, is a subject that requires a lot of ingenuity and enthusiasm if interesting meetings are to be held month after month. Men who can plan and direct stimulating meetings are none too plentiful, but in many companies potential leadership is going to waste for lack of encouragement and training.

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WIRE FROM WASHINGTON

By HARRY N. ROSENFIELD
Washington Counsel, National Safety Council

SAFETY CONSIDERATIONS have come to the fore in the executive, legislative, and judicial scene in the nation's capital.

Industrial Safety. Manufacturing's injury rate for 1959 was estimated by the U. S. Department of Labor at 11.9 disabling injuries per million man-hours worked, an increase of some 9 to 10 per cent above 1958. The rate in December 1959 was 9.9, equal to the all-time low established in 1957. In 5 industries the 1959 average was one full point below 1958; in 71 industries, it was one point or more above 1958's rate; and in 62 it varied by less than one point.

The U. S. Bureau of Mines reported that the over-all injury experience of the nation's coal-mining industry in 1959 "showed some improvement over 1958." The number of injuries decreased 12 per cent and frequency was reduced by 7 per cent. The nonfatal injury rate for 1959 was 43.59 per million man-hours of exposure, compared to 46.87 in 1958. The 1959 death rate decreased from 1.14 in 1958 to 0.99 in 1959, a drop of 18 per cent.

The Bureau of Mines issued proposed regulations governing the testing, approval, and certification of dust collectors for use in connection with rock drilling in coal mines.

The Atomic Energy Commission proposed various regulations relating to radiation safety. AEC announced proposed formalization of radiation safety requirements for persons using sealed sources of by-product material (radioisotopes) in radiography. The proposal spells out the exact conditions for use of personnel and equipment in testing materials through the production of

This report is an information service. Publication does not imply National Safety Council approval of or opposition to any legislation mentioned

an image on a radiation-sensitive surface. The regulation covers radiation levels, among other matters.

Another proposed AEC regulation is designed to guard against accidental criticality and radiation exposure to individuals during the shipment of irradiated fuel elements. The heavy shipping casks must be constructed to resist all conditions of shipment and severe impact.

AEC's Advisory Committee on Reactor Safeguards cleared the safety aspects of one proposed nuclear reactor for civilian use, but recommended further tests for another one before approving its safety provisions.

Traffic Safety. The President recommended creation of a federal agency, and appropriation of over one-quarter of a billion dollars in federal funds over 8 years, for a

mass transportation system in the Washington metropolitan area. The plan envisages a coordinated system of rail transit, express buses, and highways. The area covered includes the District of Columbia, two Maryland counties, four Virginia counties, and two Virginia cities. The plan's relation to the national capital was given as justification of the federal interest.

The new federal agency would have authority to:

(1) Make grants to regional highway directors to build essential links in the road system, acquire median strips in freeways for mass transit use, construct express bus stops, and outlying parking lots for transit users, on freeways.

(2) Improve and expand bus service.

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THE MONTH IN WASHINGTON

- Government sources say manufacturing injuries are up; coal mining rates show improvement.
- AEC proposes further protection for handlers of radioactive materials.
- Interstate highway program creates need for better rapid transit systems in cities.
- States' failure to exchange information on driver's license revocations might result in a federal register of names.
- More protection for air travelers urged.
- Labeling bill aimed at accidental poisonings.
- Public Health Service report recommends 10-year program to enable PHS to assume leadership in accident prevention.

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—From page 6

(3) And construct a rapid transit subway system.

At about the same time the President forwarded to Congress, without comment, a 78-point report of the U. S. Department of Commerce, as a result of a study undertaken at his request. This report, "Federal Transportation Policy and Program," designed to make the nation's transportation system bal-

anced and efficient, deals with all aspects of transportation.

This report says metropolitan area congestion "is primarily a local problem" but recognizes that "the federal government contributes toward the problem with its huge highway program." The report recommends "federal participation" toward the efficiency of urban transportation, and proposes that the federal government "help finance the over-all transportation plan."

In particular, Recommendation No. 49 suggests that the federal government "encourage urban long-range community planning, including total transportation planning to make full use of highway, transit, rail commutation, and all other capacity to minimize total transportation cost and congestion." Recommendation No. 50 proposes joint federal-local investigation of basic approaches to such plans and their financing, including "charges on city highway gateways to divert auto commuter travel to mass transport means."

Other pertinent recommendations include: No. 61: encourage a uniform system of state regulation of sizes, weights, safety appliances, and related matters of highway vehicles in interstate commerce; No. 73: codification of federal safety regulations and related materials in a single publication; No. 74: coordination of policy among federal agencies with "particular attention to ways of relieving transportation of over-detailed safety regulation."

Another development in connection with metropolitan mass transportation is S. 3278 introduced by Sen. Williams (N.J.) and 11 other senators. The bill would use current federal urban planning grants under the Housing Act to:

(1) Help determine the total transportation needs of metropolitan areas.

(2) Help formulate programs for use of existing mass transportation facilities.

(3) Help coordinate the planning activities of public transportation agencies.

The proposed legislation would also allow long-term, low-interest loans, to states and local governments up to \$100 million, in order to:

(1) Help coordinate and integrate construction of highway, bus, surface-rail, underground, and other mass transportation facilities.

(2) Help finance acquisition, construction or improvement of equipment and facilities for use in mass transportation or commuter service.

The Roberts Subcommittee on Health and Safety, in the House, held hearings on H.R. 5436, introduced by Rhodes (Ariz.), to

—To page 153

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An inventory of employees' visual skills is needed for placement. Sight screening devices can be operated by laymen (preferably under professional supervision). They reveal defective vision but not the corrective measures needed to eliminate defects.

Corrective Protection

Helping employees to see well, plus protecting eyes from injury, are objectives of conservation programs

EARLY EFFORTS at eye conservation consisted of little more than dispensing greasy goggles from the tool crib. Or a pair of community goggles hung over a grinding wheel with a dirt-encrusted sign warning employees to wear them while operating the machine. Occasional half-hearted attempts were made to secure compliance with the rule.

Sometimes the goggles fitted the wearer's face reasonably well; more often they didn't. They were heavier than ordinary spectacles and if not properly adjusted would gouge his nose and cut into his ears.

Now, in the well managed plant, the employee is issued a pair of goggles as clean and sterile as a toothbrush fresh from the drug store. They are adjusted to fit the facial contour and cleaned and adjusted at frequent intervals.

Industrial eye conservation naturally started with the protection of eyes against the impact of flying objects and splashes of corrosive chemicals. The man who needed corrosive spectacles had to wear cumbersome cover goggles. This led to the development of lenses which incorporated correction for vision. The corrective feature added to the protective device met with more acceptance from employees. Equally important, it focused attention on the need for good vision on the job. The question was "Which em-

ployee needed corrective protection?"

Theoretically, the best method would be a complete examination and refraction by a visual specialist, at his office, if practicable. However, this would be expensive and time-consuming, particularly for younger employees with a lower percentage of visual defects. For a practical occupational vision program, the first analysis of the employee's vision should be a screening process so those needing visual help can be detected in the shortest possible time.

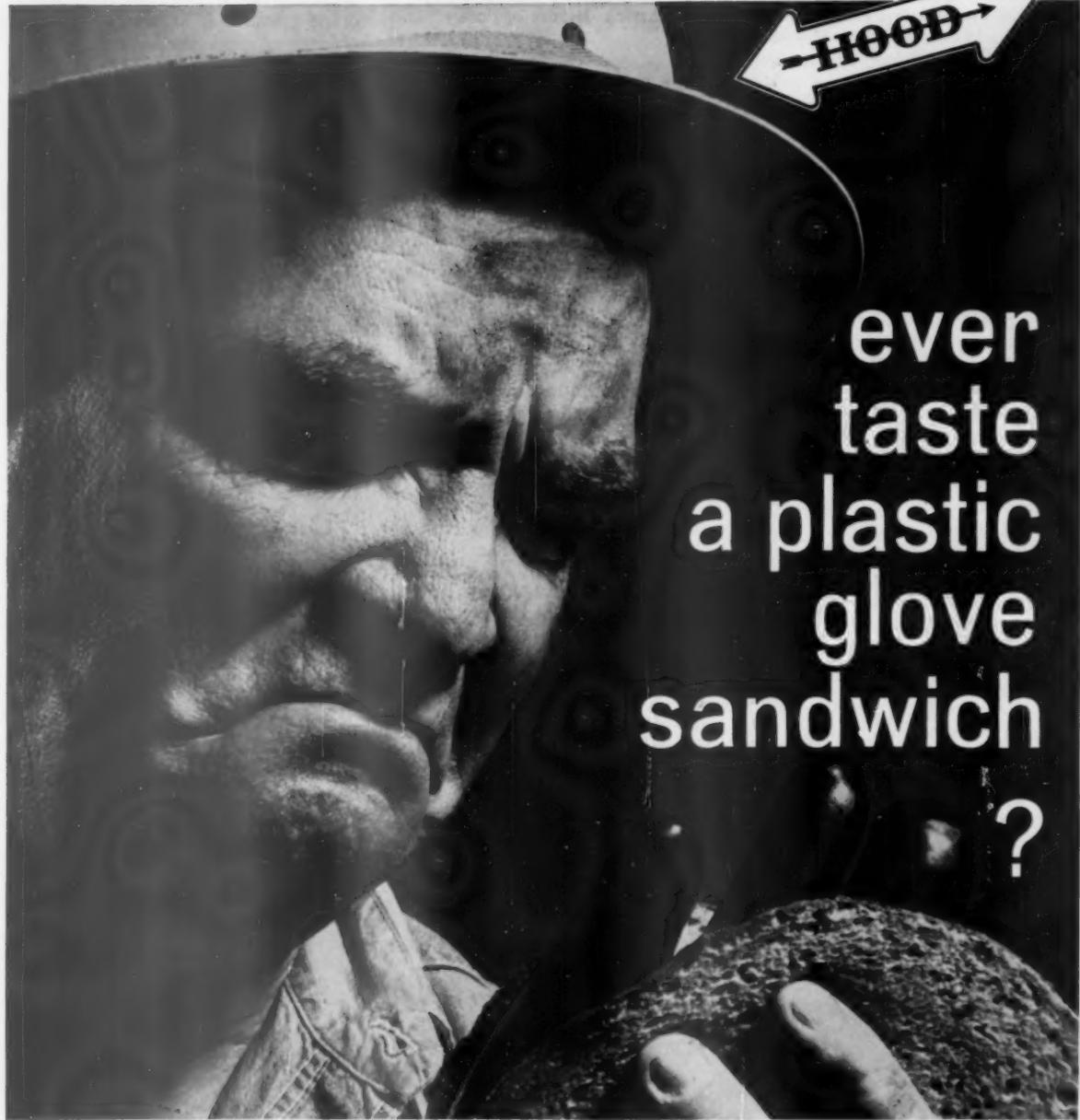
For such surveys, optical companies have developed portable instruments which can be used by laymen. Three such instruments are now on the market and have proved satisfactory for many years. Each has its own series of forms to be used for recording and interpreting the facts about the employee's visual skills.

These instruments were designed to:

1. Establish patterns of skill which have a bearing on job performance.

TEN ESSENTIALS OF A VISION PROGRAM

1. Job analysis to indicate the visual requirements of the job.
2. Visual surveys to determine those who need correction.
3. A visual specialist (ophthalmologist or optometrist) to advise and maintain standards and performance.
4. Examination and refraction to determine the requirements for adapting the visual functions to the job.
5. Protection of vision by discovery of disease.
6. Determining the type of protection needed for each job hazard.
7. Arrangement of job environment to aid efficient seeing.
8. Placement of those with visual handicaps on jobs where they can perform best.
9. Provision and maintenance of competent visual optical service.
10. Provision for changes in personnel and changes in eyes with age.



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glove
sandwich

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fingers have no seams on the wearing surface. Flexigluv is made with a two-piece jersey shell, comes in knit wrist (K-200), 12" (K-201) and a 14½" (K-202) gauntlet.

Improvements like those made in the Hood Flexigluv can be found in other industrial gloves of the Hood line, which includes latex gloves and gloves coated with neoprene, rubber and Koroseal. For more information, call your Hood distributor, or contact *Hood Industrial Gloves, Dept. N, Watertown 72, Massachusetts.*

Koroseal—T.M. Reg. U.S. Pat. Off.

HOOD *industrial gloves*

2. Make an accurate record of the individual's visual skills.
3. Determine whether or not the individual has desirable visual patterns for doing his work safely.
4. Reveal those who need professional eye care.

These screening tests, or surveys, as they are called professionally, simply disclose *how* an employee's eyes and vision function. They do not show *what* is wrong nor determine what corrective measures are needed. Those who make unsatisfactory scores or who have conditions requiring further investigation are referred for professional examination and diagnosis.

While a trained layman can make tests with equipment and correlate results accurately, it is desirable to have a visual specialist present to examine the eyes for disease or injury. The combined tests seldom take more than 10 minutes per employee.

These tests include:

1. *Distance acuity.* Clearness of vision for each eye separately and both eyes together at a distance of 20 ft.
2. *Near acuity.* Clearness of vision of each eye separately and both eyes together at the normal working distance, depending on the job.
3. *Depth perception.* Ability to judge distance and space relationship so as to see things where and as they actually are.
4. *Field of vision.* Ability to see over a large area to right and left and up and down while focused on a point.
5. *Color discrimination.* Needed in

some occupations. About 8 per cent of all men and 1 per cent of all women have varying degrees of "color blindness."

Job requirements. What the employee has to see must be taken into consideration. It is seldom possible to provide an all-purpose correction which will insure the safest, most accurate and efficient seeing for every type of work. For example, lenses and frames which might be satisfactory for a highway truck driver might not be suited to the needs of a milling machine operator. Job analysis forms, similar to the one shown in an accompanying illustration, have been developed by optometrists.

The job survey should include:

1. *Visual environment.* What is the level of illumination? Obstructions to vision? Unavoidable glare sources? Exposure to injurious radiation?

2. *Work positions.* Is equipment mobile or stationary? How much physical activity is involved? Do men climb, lift, or work aloft?

3. *Visual discrimination.* Does the job demand close attention to fine detail? Over how wide an area must an employee direct his attention? Is color discrimination required?

4. *Eye hazards.* Have protection standards been established? Is side as well as frontal protection needed? Metal or plastic frames? Can protection and correction be combined in the same device?

Different jobs require different types of vision. A crane operator,

for example, has a seeing task that differs from a bookkeeper's. The crane operator is looking at distant objects; a bookkeeper at near ones. The crane operator is manipulating equipment in three-dimensional space and must have accuracy of judgment and location of objects in that space. A bookkeeper or draftsman is working in two-dimensional space—a sheet of paper on a desk or drawing board.

Lighting differs for each job. The crane operator would prefer a directional light which gives shadows and increases the three-dimensional quality of his space. The bookkeeper would prefer diffused light to increase the contrast of the characters on the page without causing glare.

The crane operator would prefer to have the various objects in his three-dimensional space of different colors and brightness to aid in differentiating them. Black and red ink are sufficient for a bookkeeper.

Working conditions. Improving the job environment can make more effective use of visual skills. From the standpoint of seeing, lighting is one of the most important of these. Expert use of color is another important aid to vision and safety.

Work for the handicapped. The purpose of visual surveys is not to screen out those with defective vision. Their principal concern is the adaptation of the employee to the requirements of the job and to discover those who need visual help.

A good occupational vision program should include efficient employment of those with uncorrectable defects. There are jobs that blind persons can learn to do efficiently. Productive employment of handicapped persons has immense social values.

From the standpoint of safety, many jobs require binocular vision, but there are also jobs for persons with normal vision in one eye. They can often be placed as machinists, toolmakers, molders, drill press operators, precision grinders, and operators of automatic screw machines, if the equipment is adequately guarded. Persons with blind areas in their field can work safely on jobs in which the area of danger from moving parts falls within the seeing area of their field.



Those needing professional care are referred to refractionists

TODAY'S Most Modern SAFETY EYESHIELDS

USSSCO's
All-Plastic
SAF-I® LINE

offers a complete range of safety eyewear, for every eye protection need.

SAF-I Flexible Frame Cover Goggles

are available in 6 styles (3 shown here), featuring maximum protection, generous ventilation and true wearing comfort. "Airflow" models are guaranteed non-fogging.

SAF-I All-Plastic Specs

feature feather-light wearing comfort with real impact protection.

All models meet Federal specifications for impact resistance and optical qualities. Available with or without side shields, with clear or green lenses.

Write for complete USSSCO Catalog

Your Modern
Safety Headquarters

AIRFLOW® FLEX

For impact protection—an excellent cover goggle.



"THRIFTY" FLEX

For impact, chemicals, dust protection—a good cover goggle. Choice of button screen, hooded screen or grid vents.



AIRFLOW® CHEM

For chemicals, dust, impact protection—a fine cover goggle.



SERIES 25 SPEC

For impact and glare protection. A styling leader.



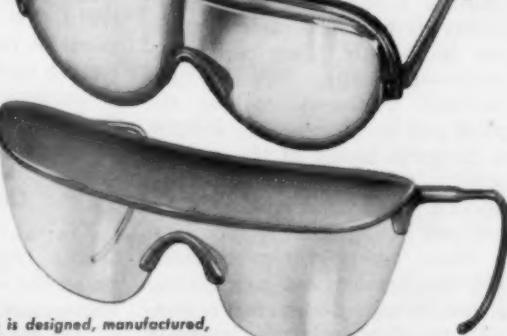
SERIES 24 SPEC

For impact and glare protection. One-piece lens and brow bar.



SERIES 26 EYESHADE® SPEC

For impact and glare protection—from above, front and sides.



All equipment in the USSSCO line is designed, manufactured, and sold direct to the user by United States Safety Service Company. There's a trained, full-time USSSCO Safety Service Engineer near you. See Yellow Pages, or write Kansas City.

UNITED STATES SAFETY SERVICE CO.
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1539 WALNUT ST.
KANSAS CITY 8, MISSOURI

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Where plants cover a large area, transportation for guests is desirable.
(Photo by Pontiac Division, General Motors Corporation)

Planning Open House?

Be sure your plans include all possible measures for
the safety and well-being of your guests. Here's how

By **CHARLES A. GOODWIN**

Traffic and Transportation Engineer, Liberty Mutual Insurance Company, Boston, Mass.

PLANT TOURS and open house events are becoming common practice in industry. They permit the public—neighbors, suppliers and potential customers—to see the plant and its processes, to develop a favorable image of the product and/or the company, and bring about a better understanding of labor and management relationships.

These events require considerable preplanning and concentrated follow-through. Committees responsible for plant tours may involve a number of plant people to handle specific functions. These may include a company official, chief engineer, office manager, plant security manager, advertising manager, safety engineer, plant superintend-

ent, cafeteria manager, public relations manager, and others.

The safety director can encourage management to give consideration to the safety and well-being of all guests. A careful explanation of the liability aspects and a review of potential accident locations will show the need for incorporating safety in the plans.

General Safety

The safety director and his staff should keep themselves informed on special events and arrange with management to inspect the layout of the tour and set up necessary precautions.

One effective method of making an advance inspection check is to arrange a practice tour, with guides representing the visitors. Points of conflict or exposure will become

readily apparent and can be corrected. In addition, the guides gain familiarity with the route, and can be coached on emphasizing such features as plant safety installations and procedures.

Advance check. Inspection of the route should include a screening of:

1. Number of stairs or elevators to be included. Whenever possible, stairs should be eliminated as part of the route to reduce the possibility of falls and the need for climbing.

2. The condition of stairs, elevators, platforms, passageways, as related to floor surface, illumination, clearances, protective railings, or gates.

3. Potential exposures at all blind corners, intersections or corners, and provisions made to warn or protect visitors.

—To page 112



ON THE DAY FIRE STRIKES...

IT'S TOO LATE to check foam liquid for fire-extinguishing performance

IT'S TOO LATE to see if you have enough foam liquid on hand

IT'S TOO LATE to check operation of foam-makers and other foam devices

IT'S TOO LATE to find out whether or not your foam towers work dependably—in a hurry!

but...

it's never too early to make **SURE** of
quality and performance in
fire-fighting materials! Insist on proof.
That's what you get when you buy from



NATIONAL FOAM SYSTEM, INC. West Chester, Pa.

THE SAFETY VALVE



Nothing human is alien to me
—TERENCE

FRINGE BENEFITS

PENSIONS, group insurance, hospitalization, and paid vacations are important adjuncts to the paycheck. They figure prominently in labor contracts and the help-wanted ads.

But there's another, less tangible, factor that makes a job desirable—prestige, or "status."

Speaking before the American Management Association, Professor George S. Odiorne (University of Michigan) commended the use of status and rank and the symbols that surround it as incentives. He mentions a few.

1. *A raise in executive pay.* A fat paycheck is still the most important symbol of status. It means something to be in a certain salary bracket, even though insatiable federal, state, and municipal governments leave the take-home pay sadly shrunken.

2. *More elegant offices.* A private office is a conspicuous symbol of success and status. To an ambitious young man on the way up, few steps seem so big as his elevation from the bullpen to an enclosure with his name on the door. And among the elite who occupy these cubicles there are degrees of rank according to the size and luxury (if not taste) of their quarters. Deep-piled carpets, magnificent furniture, and a professional decorating job increasing in opulence with rank are things to dangle before a promising man. The fringe benefits may include a decorative secretary.

3. *Company cars.* An important benefit, often tax-free, has been the company car, with no questions asked about the mileage devoted to company business. Of course, it wouldn't do for all executives to have the same kind of car, so these status symbols may rank from a Cadillac for the president down to compacts for the juniors.

4. *Club membership.* Belonging to the right club may impress the people the company wants to cultivate, so the employer is often willing to pick up the tab. Of course, there is rank among clubs, too, so an incentive would be to provide membership in a still swankier club with each raise in rank and pay.

Titles, along with or in lieu of salary raises, are also incentives. And a title in itself isn't taxable. The internal revenue boys are getting tougher on such perquisites as yachts, club memberships, and swindle sheets.

But, the professor warns, there is a price to be paid for status. Moving into a higher echelon involves some sacrifices.

There is the sacrifice of leisure time available to those with less responsibility. Two hours for lunch is

no privilege if it involves a conference. And midweek golf is hardly recreation if the game is merely a means of making contacts.

The status seeker can't expect a normal family life. In his upward climb he may become almost a stranger to his family. He may fly in a company plane but he'll miss playing ball with his kids or helping them with their homework.

He must live a rootless existence. He's a corporation man and indebted to it for his status, so he must sacrifice the stability which comes with living in one place and building up personal and family relationships in the same town. He's a transient, always on the move. He may have to live in a skyscraper apartment when he'd rather have a rancho and an acre in exurbia.

The price, as Dr. Odiorne points out, is high, and many men will decide that the rewards aren't worth it.

IT'S DANGEROUS TO BE FUNNY

NORMAL PEOPLE like to laugh, but when it comes to humor, what's meat for one person is poison for another.

Most of us have tried jokes that backfired. They may be unintentionally offensive to certain ethnic groups, they may be too earthy for some tastes, they may be misinterpreted, or they may just fall flat.

In all types of communication—especially in safety, it seems—a lot of ingenuity is needed to flag the reader. So there is a constant effort to be clever.

In a recent mailing, Better Letters Exchange, of Howell, Mich., included its idea of a horrible example.

Opening an envelope I found a folder titled "Open in Case of Fire." Like everybody else who received it, I didn't wait for a fire. When the folder was opened this popped out: "Not now, Stupid... In Case of Fire!"

Now how would you react to that one? BLE tried it on 5 friends—2 resented being tagged as "stupid," 1 responded with a blank look, and 2 laughed out loud.

My own reaction was neutral. Being called stupid didn't bother me; I'd been called that by teachers, sergeants, and bosses. It just seemed to me they were trying awfully hard to attract attention to whatever idea they were trying to put across. I can't remember what it was.

Even a really clever stunt is a flop if the reader remembers it and forgets the message it's supposed to introduce. And anything that can cause irritation if taken literally is a hot potato. In the spoken word, a smile and inflection of the voice can influence the effect of words, but cold print or typewriting has no such modifiers. And unless somebody tapes your speech, there's no permanent record of it.

Broad humor, as BLE reminds us, should not be confused with the "light touch." The latter can keep people from thinking that you take yourself too seriously.

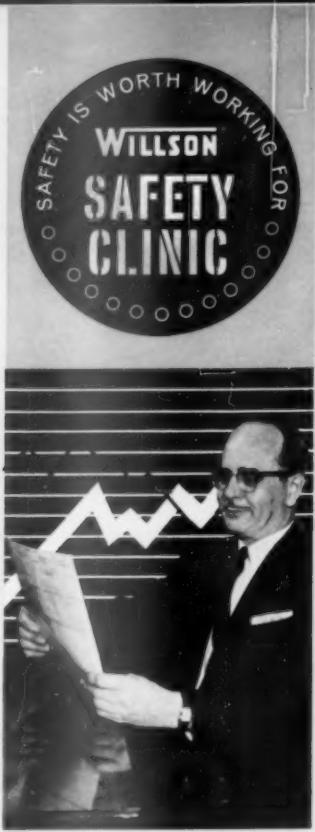
Carman Fish

Circle Item No. 10—Reader Service Card →

EYE PROTECTION ...as seen through management's eyes

Even though your performance is measured in terms of accident frequency, there are still conflicting considerations—and candid safety directors are conscious of them. Any manager's performance is largely measured in terms of profit. Can he (or you) help being torn between the objectives of safety and good old economy? Actually, each depends on the other—no profit, no jobs. Sick or disturbed people—no profits.

In these days of rapid change, costs are hard to control. *Hidden costs*, such as pension funds, safety, insurance, medical care, and recreation—are adding a terrific burden to every hour of direct labor. Man-



agement continues to offset them by putting in new machinery to increase productivity. (It's one of the few things they can do to help.)

Safety and economy unite in universal-fit safety glasses

Safety directors are on top of it, devising new ways to trim hidden costs.

Willson took the first step by designing the hinged-bridge Contour-Spec—the safety spectacle with side-shields that fits almost anyone with two eyes. Simpler, faster fitting and substantial inventory reduction assured cordial acceptance by safety directors.

Then Willson engineers came out with another universal-fit spectacle—announced to all and sundry last fall under the trade name: MonoSpec.

Because of its smart styling, adaptability to 95 out of 100 nose shapes, and plush feel of the new wide bridge, the MonoSpec, too, is catching on fast. Inventories and replacement policies are being changed in many plants to trim safety program costs and make safety directors popular members of the profit team.

One-size bridge cuts hidden costs

With the MonoSpec, you can avoid lost production time—and your own costs of ordering, stocking, record-keeping, and insurance can be reduced. Try-ons, adjustments, and "special cases" are minimized. A small stock of MonoSpecs easily handles the requirements of a large plant.

MonoSpecs are worn . . . not wasted

You know this—that workers often resist wearing safety glasses simply because they like what they see when they look in the mirror and don't want to change it. That's human nature . . . but MonoSpecs, with smart streetwear styling, minimize this problem. The popular F7 lens shape and molded flesh or charcoal-colored frame make them highly acceptable to both men and women.

Here is another advantage. Comfort is not so much bridge fit as it is weight distribution. Because of the great number of bearing points distributed evenly over a broad contour shape, the MonoSpec feels deceptively lightweight to the wearer.

By standardizing on MonoSpecs, you can go a long way toward simplifying your eye program . . . policing your inventory . . . and reducing costs on a very practical basis, while giving your employees the *complete* protection they need. Management puts a quick stamp of approval on a program that contemplates this combination of objectives.

Your Willson Safety Equipment Distributor will be glad to demonstrate how MonoSpecs can reduce the number of hard-to-fit people in your plant.



Industrial Safety Products Catalog

This 72-page catalog is a useful, quick-reference directory that prescribes correct protection for specific hazards. It is divided into four sections—head, eye, hearing, and respiratory—contains complete facts and specifications for all Willson safety products. Write for your free copy.

Willson Products Division
Ray-O-Vac Company
Reading, Pennsylvania
Safety Supply Company of Canada

WILLSON®

CRITICAL RESPIRATORY HAZARDS...

How will you lick
them in your plant?

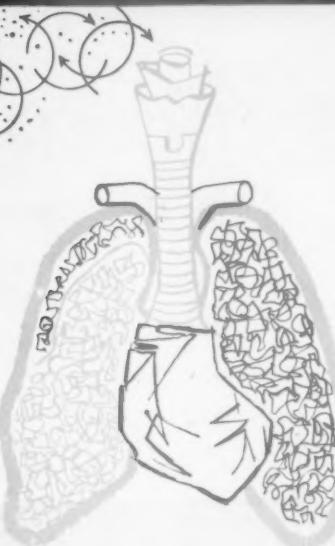
- Industrial gases, vapors, carbon monoxide
- Toxic fumes and smokes
- Toxic and nuisance dusts and mists
- Silicosis-producing dusts and mists
- Combinations of these

There's one highly successful solution that you and your employees can *live* with in comfort—day in and day out: the Willson line of gas masks and respirators.

Willson universal gas masks protect against all types and combinations of hazardous industrial gases, vapors, carbon monoxide, dusts, mists, fumes, and smokes. Both facepiece designs—the Willson Scottoramic and the Willson standard are comfortable to wear, yet gas-tight, sure, safe, and U. S. Bureau of Mines approved.

The new window indicator, universal-type canister may be used with either mask design. It announces—visually—when the canister no longer protects against carbon monoxide.

Reduced fogging. On all Willson full-face masks, inhaled air passes over the curved plastic safety lenses to reduce fogging. A flexible corrugated breathing tube eliminates kinking, permits free head movement without interrupting air supply. The exhalation valve in the facepiece carries the voice sufficiently well for emergency instructions to be clearly understood. Adjustable rubber head harness



Toxic fumes and smokes from welding

Here is a product you might look into because of the greatly increased use of leaded steels (terneplate). There isn't enough space to go into steel trends here—we'd rather use what's left to spread the word about Willson air-line respirators. They give you the best possible and most comfortable respiratory protection from toxic fumes generated while cutting or welding brass, zinc, lead, galvanized iron, and lead-painted surfaces. (Willson 880C metal fume respirator is also excellent for toxic fumes.) Both are U. S. B of M approved.

Your choice. Both half- and full-face air-line respirators are available. (Full face is used for atmospheres where the gas or vapor is irritating to the eyes as well as to the respiratory system.) Both have adjustable break-valve couplings to connect the respirator to the compressed air supply and safely regulate the flow.

Toxic and silicosis-producing dusts and mists

Insidious dusts, sly mists can't penetrate—keep their distance. The Willson Mono-Mask provides a snug face fit, a positive protective seal, and exceptional comfort while protecting against all dusts, pneumoconiosis-producing mists, and chromic-acid mist. Reliable positive-action inlet and outlet valves assure uninterrupted ease of breathing. Clean—rugged, integral construction and smooth, clean lines help keep it sanitary. It is worn easily with glasses or goggles.

Ask your Willson safety equipment distributor about our complete line.

and accurate contouring of the mask edges permit an unusually comfortable fit, even when worn for prolonged periods.

No distortion. The Willson Scottoramic facepiece provides 100% undistorted and unimpaired forward vision... 180° or more horizontal vision. Its shock-proof, crystal-clear safety lens is securely locked in place by a stainless steel frame. Dual, airtight seal of facepiece gives added protection against gas leakage.

Low cost. Willson industrial gas masks are the most economical respiratory protection to use when only one type of gas or vapor is involved. Both Willson standard and Scottoramic designs are widely used to protect against hazardous organic vapors, acid gases, combinations of both, ammonia, and chlorine.

Willson's WHG gas masks, with smaller canister of 375 cc. capacity, protect against the same hazards as the standard mask, but for shorter periods of time. Short, compact design—it can be slipped on quickly in an emergency—allows great freedom of movement in confined spaces.

Universal Standard
Gas Mask



Industrial WHG
Gas Mask



Air-line
Respirator



MonoMask
Respirator



SAFETY is worth working for

WILLSON

Willson Products Division
Ray-O-Vac Company
Reading, Pennsylvania
Safety Supply Company of Canada

Inscrutable but safe. Model eschews California smog, defies preying insects, rejects cleverly disguised scents—and totally defeats the considerably less benevolent gases and odors around your plant.

SAFETY IS WORTH WORKING FOR
WILLSON
SAFETY CLINIC

AROUND THE COMPASS



ACTIVITIES • PROGRAMS • EVENTS

By THOMAS J. NOLAN

Field Service Department, NSC

New Pamphlets For the Elderly

Safety Hints for the Elderly is a new series of four pamphlets published by the National Safety Council. Each pamphlet points up environmental aids and personal practices which will help prevent accidents among elderly persons having certain physical and mental impairments.

Titles of the new leaflets are *Poor Sight?*, *Tire Easily?*, *A Little Shaky?*, *Forget Things?* The copy in the last leaflet is slanted to persons responsible for care of older persons but is also suitable for direct use.

Each pamphlet is 3½ x 8 in., four pages, and illustrated in four colors. Language use requires no more than eighth grade reading skills. Illustrations make comprehension possible for all above fifth grade level.

For price information and a single sample set, write to the Home Department, National Safety Council.

Sacramento Names New Manager

The Sacramento Safety Council has announced the appointment of James R. Jarrell as manager of the organization. He joined the council as public relations director last August and succeeds Mrs. Gladys Tolbert, who has retired after two years as council manager.

Double Anniversary Observed

The St. Joseph (Mo.) Safety Council completed 25 years of service to the community in December 1959, and observed its silver anniversary at its annual dinner on March 23. The dinner also served to honor the council manager, Wal-

ter D. Ladd, on his 25th anniversary as manager.

NSC President Howard Pyle talked on the subject "Safety in the Sixties." Francis Smith, St. Joseph attorney, former state senator and a past president of the council, spoke on "The Past and Future of St. Joseph's Safety Program." The council's president, Robert Barrie, acted as toastmaster.

Field Staffs Attend Course

During the week of March 21 the district directors and many of the NSC headquarters staff of the Field Service Department joined with field personnel from other national organizations in attending a course on Field Services and Programming in Traffic Safety Management. The classes were held at the Moraine on the Lake Hotel in Highland Park, Ill.

The course is part of the total program in State Traffic Safety Management conducted by the Center for Safety Education of New York University. Dr. Walter A. Cutter served as director and course coordinator. He was assisted by Paul Blaisdell, Maxwell Halsey, and Paul Hill.

"Safety Dynamics" Leaflets

The Twin Cities Area Safety Council, St. Joseph, Mich., recently developed a series of "Safety Dynamics" leaflets. Each leaflet in the series briefly describes the activities for a program of a particular division of the council. The facts are presented briefly but completely.

These leaflets will serve a three-fold purpose: First, the entire series

will acquaint the Membership-Finance Committee with the council's work. Second, this committee will use the series in acquiring new memberships. Third, the sheets will be used singly as mailing pieces to accompany the monthly newsletter.

New Director for Illinois and Indiana

John P. Fleming has joined the NSC staff and will be district director for Illinois and Indiana. He will headquarter in Chicago.

Mr. Fleming came to the Council from the Illinois State Police, where he served as a sergeant in the Traffic Safety Section. He was a lieutenant in the U. S. Army and is currently a captain in the military police of the U. S. Army Reserve.

New NSC Board Committee

The first meeting of the NSC Board Committee on State and Local Safety Organizations was held April 5 in New York City. The committee, composed of the 19 directors nominated by the Conference of State and Local Safety Organizations, was established to "provide at leadership levels support and assistance to the Conference of State and Local Safety Organizations and the staff for the work of creating and strengthening organized state and local safety groups."

Full-Time Secretary Named

The Highway Life Savers Committee of Oregon Citizens, Inc., has named Frank J. Quinlan, former president of the Portland Junior Chamber of Commerce, as its first

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In the hard-to-control environment of the community, safety programs are lagging. How can the potential leadership be enlisted and motivated?

Safety's Stepchild . . . The Community Program

By R. H. FERGUSON

Assistant Director of Industrial Relations—Safety, Republic Steel Corporation, Cleveland, Ohio.

HAVING been a safety man for 35 years, I can see how far we have come, but I know with deep personal conviction how far we have to go in saving lives and preventing injuries.

We have made great progress, but as long as people continue to be maimed and killed by the tens of thousands we cannot rest on our laurels. Whatever the cost in money, thought, planning, and dedication, we must drastically reduce the accident toll. You have heard about industry's methods of coping with the problem inside our plants. Management, union leaders, and government authorities agree that industrial accident rates must be brought down, and we think we know how to do it.

But I am deeply concerned about our slow progress in reducing accidents in the community. Many people are interested in community safety, but too many local programs are spotty, many have insufficient

support, and in some places the program is virtually ignored.

Community safety is still the stepchild of the national safety effort. We need leaders, a program, and attitudes that will make everybody's safety everybody's business.

The men and women who are already working in this field are doing a superb job with inadequate resources. But we need more dedicated men and women, more agencies, and much more financial and moral support for existing agencies.

In this democracy we get what we pay for, and we have not been willing to pay the bill for community safety. In some areas we actually pay out more hard cash for the care of wild and domestic animals than we do for the prevention of accidents to human beings!

How important is community safety? Are people safer on or off the job?

The shocking fact is that off-the-job accidents are the great killers. Last year 91,500 people died in accidents. Of this total, 43,600 were workers—less than half. But get this. Of those 43,600 employees, 29,800 were killed off the job!

In other words, nearly 85 per cent of the accidental deaths in 1959 were the direct responsibility of community safety programs.

There is no doubt about it. We must expand our community efforts. But how can we go about it?

The first requirement is clearer, more practical thinking about the community safety problem. We seem to be looking for a magic word, a formula that people can wear like a rabbit's foot to ward off harm. But there is no formula, no magic word—except "hard work." Community safety is a problem in education that should begin at the cradle and extend throughout life.

In my company, Republic Steel, we have a safety philosophy based on three separate but interlocking ideas. First, men live and work in an environment that is hostile to them. They must be protected from it. Second, men are naturally "careless." They must be protected from themselves. Third, the company accepts the responsibility for creating a safe working environment, and for helping men combat their own "carelessness." But most important of all, it assigns responsibility for the safety effort.

Can we apply this philosophy to the community? I think we can, but it will be harder to do. The environment is broader, and we do not have a captive audience to work with as we do in the mills. Except in the home, where parents have a

An address before The President's Conference on Occupational Safety, Washington, D. C., March 2, 1960.

natural role in safety work, there is a lack of what we might call "built-in" leadership such as you find in the ranks of management. But all of these difficulties can be overcome if someone assumes leadership in each community.

Wherever you find a community without an active safety program, you will find community leaders who have not awakened to their responsibility.

But pointing the finger is not enough. What steps do we take to find leadership?

There are plenty of potential safety leaders in every community, but too often they lack a key man to get them moving. In most instances that key man can be found among the handful who are already assuming leadership in community affairs—political leaders, spiritual leaders, business leaders, and other public-spirited citizens.

I think we should make a particularly strong appeal to political leaders at every level of government—not to urge them to pass legislation, but to enlist their aid in mobilizing community life. Therefore, it is a natural area for political leaders to take the initiative.

That is why it is so gratifying to me that the meeting I attended in February was a "Governor's Industrial Safety Conference," and that this is "The President's Conference on Occupational Safety." This is the kind of political leadership we need—councilmen, mayors, governors, and presidents who will stand up in meeting and say, "Safety is our business." We need officials who will put the finger on local civic leaders and say, "Here is a job to be done. Will you help?"

The reaction often surprises those who are new in safety work. In my experience, when a leader points out a safety job to be done, he is often



overwhelmed by the response. The reason is that people and organizations are concerned about the safety problem, but without leadership they are hesitant to do anything about it.

Who are these potentially interested people and groups? Let's make a rough listing of those that are available in the average community. Let's start with people.

The businessman is a natural. His prosperity is geared to the well-being of the community. He has a big stake in its growth and development. He is a man of initiative and energy. He can be depended upon for money, and he will have an interest in seeing that funds are spent wisely.

Then there are the professional people in the community—the ministers, the teachers, the doctors, the lawyers, the social workers. They are already dedicated to the service of mankind. They don't have to be sold on the value of safety to the community.

Women are another prime source of leadership in safety programs. As mothers they are deeply interested in the welfare of their children. As wives they are interested in the welfare of their husbands. Women are imaginative and hardworking members spearheading many community safety teams, and often take leading roles.

The safety departments in local plants are an invaluable source of trained safety men. Bring them, along with their plant managers or superintendents, into the program, and you have the technical assistance and "push" any good program needs. Their professional skill will help you avoid many of the mistakes

that amateurs make, even with the best of intentions.

Union leaders are good prospects, too. They know how to get along with the working man. They can help you tap a huge reservoir of potential workers for safety, a reservoir which is frequently overlooked—the employees of our industrial plants. These employees are deeply indoctrinated with the principles and practice of safety. If they are encouraged to make the effort, many of them can become teachers of safety in the home, the school, or in other community centers.

Now let's turn from individuals to groups. What help is available to the community program? At the national level, of course, there are the organizations chartered to work exclusively for safety. The National Safety Council, for example, the National Fire Protection Association, and the Automotive Safety Foundation are in business to promote safety, and all are heavily involved in helping to solve community problems.

Others place safety high on their agenda. Last year, for example, the Boy Scouts made "Traffic Safety" their good turn for the year. Organizations such as these stand ready to aid any local group that calls upon them.

At the local level we have business groups such as the Chambers of Commerce and the Junior Chambers. We have organizations such as Kiwanis, Rotary, and the Veterans associations. We have service organizations such as the YMCA, the YMHA, and the Red Cross. We have women's clubs, and in a special niche with a close tie to the schools we have the Parent-Teacher Association. All of these organizations can be enlisted in the local safety effort.

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RADAR CAN BE TAMED



Antenna and control system for high resolution airport surface detection radar. This unit scans entire field once every second.

An invaluable aid to navigation, aviation and civil defense, radar introduces some serious but controllable hazards

By MARSHALL E. KULBERG

Division Safety Engineer, Semiconductor Division, Sylvania Electric Products Inc., Woburn, Mass.

THE ELECTRICIAN had just completed his job and bent down to pick up his tools. The small radar set behind him was being operated without its protective case. As he rested one hand on a pipe, a screwdriver he carried in his hip pocket touched a condenser terminal. A spark jumped, and he fell to the floor unconscious from electric shock.

In spite of efforts of fellow employees to revive him, he never regained consciousness. This incident occurred during the early 1940's, when radar had just been introduced, and was one of the first fatalities charged to radar.

Shortly afterward, a technician found that a high-voltage trans-

former had failed and had shut down one of the radar test kits. To save time, he didn't open the rear panel near the transformer but planned to lift it over other components from the front.

He released the holding screws and leads and grasped the unit. As he lifted, he felt a severe pain in his left groin and quickly set the transformer down. He had suffered a hernia, which disabled him for life.

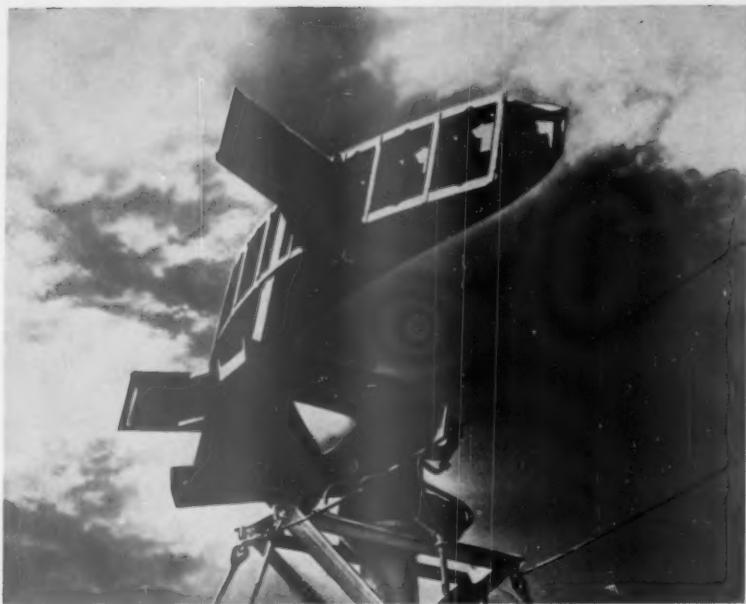
These are but two of the hazards present when a person works on radar equipment. The chance of a dramatic accident may exist in some situations, but it's more likely that injury will be a result of routine hazards.

A few years ago one published story—popularly called the "California Cookout"—told of a death due to microwave energy. This article apparently exaggerated. The man mentioned did not suffer ill effects from exposure to radar ener-

gy. He suffered a ruptured appendix which, with complications, led to his death.

Major hazards associated with radar include:

1. Material handling hazards, particularly with portable equipment and during its installation or removal.
2. Falls from towers or in or around the radar unit.
3. Electrical hazards connected with use and servicing of high-voltage electrical equipment.
4. Flammable oil fire hazard in certain transformers and condensers of high-voltage electrical equipment. In addition, a fire hazard may exist when flammable gases, fumes, vapors, or explosives or other highly combustible materials are present in the radar beam.
5. Toxicity of gas fills in certain wave guides.
6. Hazardous X-radiation from high-voltage tubes.
7. Hazardous radioactivity from radioactive activators in certain radar switching tubes.



Commercial marine radar antenna system designed to withstand high winds.

8. Harmful effect of electromagnetic radiation on the body or its parts. Hazards from handling materials, from falls, from electrical equipment, or from ordinary fires have been treated elsewhere.

Use of chlorinated hydrocarbon as an extinguishing medium, although effective on fire, is not recommended on enclosed radar equipment because of its toxicity. Dry chemicals and carbon dioxide give the desired results but present none of the health hazards produced by chlorinated hydrocarbons. Dry chemicals, weight for weight, are more effective than carbon dioxide but involve cleanup, especially on relay contacts.

Radar equipment can cause ignition of flammable materials by induction heating of steel or other metals or by sparks produced across a small gap between metal elements in an area where explosive fuel-air mixture is present.

In the first instance ignition takes place, because the actual temperature rise of the material exceeds the ignition temperature of the flammable in contact. In the second instance sparks across a small gap provide the ignition. For example, this can occur during fueling of an aircraft when the fuel nozzle is removed from the tank inlet, if proper grounding techniques are not used.

Generally, the fuel air mixture adjacent to the tank inlet is too rich to ignite, but one cannot depend on it. To minimize this hazard the National Fire Protection Association has recommended that aircraft weather-mapping radar sets not be turned on when within 100 ft. of a fueling station.

This 100-ft. figure has been set up to give a many-times safety factor

for the types of radar used. With some of the larger ground-based radar units the distance could be considerably greater than the 100-ft. minimum recommended. Also, during blasting operations in the vicinity of high-power radar sets, care should be taken to be certain all proper techniques are used to prevent a premature explosion.

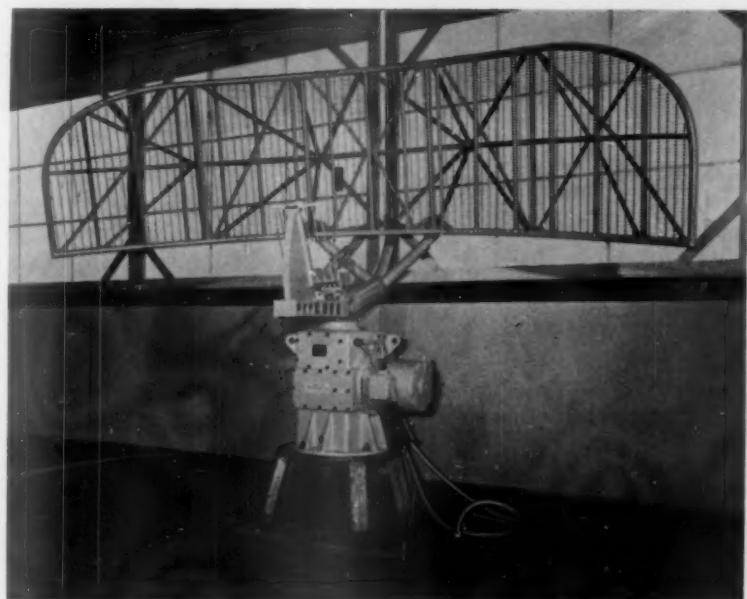
Photoflash bulbs are sensitive to RF energy. Under ideal conditions bulbs have been set off at several hundred feet from low-powered radar units. Photoflash bulbs in their standard package present little hazard, as it is virtually impossible to ignite the cartons, should the bulbs be set off.

However, improperly packed or loose bulbs may, if in the area of low-ignition-temperature materials, start a chain reaction that could start a fire.

Of more embarrassment than anything else would be the effect of photoflash bulbs ignited in the pocket of a photographer working in the vicinity of a radar set.

To pass very-high-power energies through small dimension wave guides required for high frequencies, it is often necessary to fill the wave guide with inert gases. One common fill, sulphurhexafluorine, will break down in the presence of an

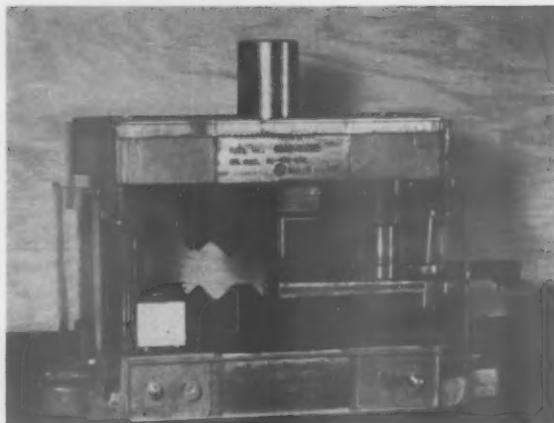
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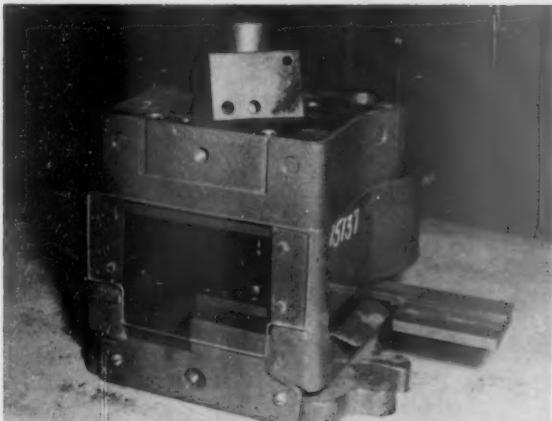
Antenna for radar set.

PLASTIC FOR DIE GUARDS

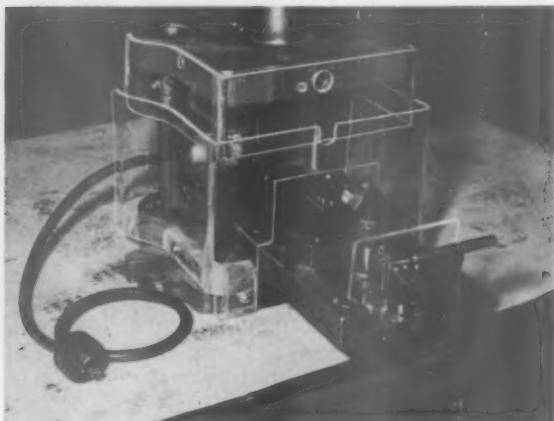
**It's easy to work, it keeps hands out
of the danger zone, and you
see the die surface through it**



1. Guard for a progressive perforate, cutoff, and form die made entirely of $\frac{1}{4}$ -in. sheet plastic. Guard is made in two sections which telescope to provide protection for 3 in. of press stroke, in this case.



2. Guard constructed principally of sheet metal with a $\frac{3}{16}$ -in. plastic window. Most guard damage occurs through abuse in handling and storage of the tool. Where rough handling is a problem, less plastic is used, with some sacrifice in visibility.



3. Slide-feed-equipped dies can be similarly guarded. In this case, the opening in the lower half of the guard section for slide, die, and part is closed by a guard section on the die when the slide is in the working position. The die is protected by electrically interlocking press controls with "home" position of slide.

By J. A. CHURCHILL

Supervisor, Safety Engineering, Safety Service Department, Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

GENERAL USE of sheet plastic in die guard fabrication has been rather limited, apparently because of doubt as to its durability for such applications. We have built several thousand individual die guards, utilizing plastic for the entire guard or as window material in guards of sheet steel or aluminum, and we feel the advantages of plastic far outweigh replacement problems involved.

In addition to the obvious safety benefits obtained through use of die enclosure guards, we feel that high

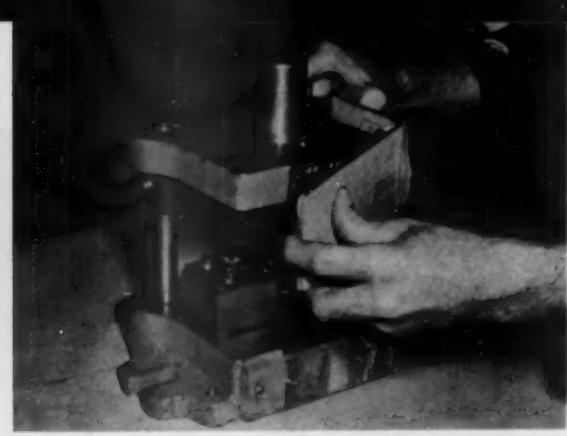
operating efficiency of hand-fed dies is obtained and adjustment problems associated with universal type barrier guards are eliminated. Sheet plastic, in providing minimum obstruction to seeing the die surfaces, gains employee acceptance of barrier guarding.

Fabrication of acrylic sheet plastic guards or guard components can be done efficiently with simple shop tools. Figures 1, 2, and 3 show finished guards. Figures 4 to 9 show steps in fabrication.

Since our original use of plastic barrier guards 15 years ago, considerable progress has been made. Fabrication methods have not changed. However, we have been able to guard increasingly complex dies with full success. No injuries have occurred on dies guarded in this manner.



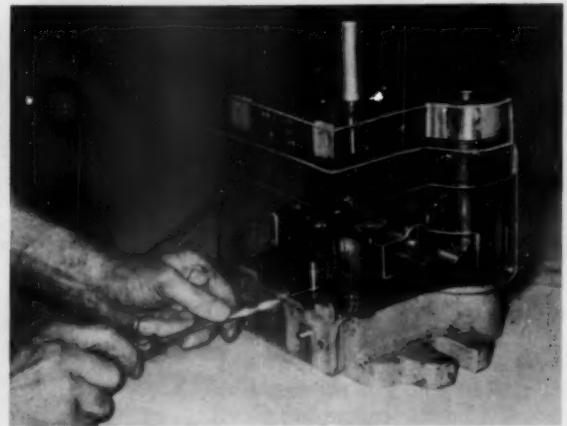
4. Acrylic plastic can be cut with a small wood bandsaw and edges smoothed with a disk sander. It is thermoplastic resin. Sheets can be formed easily when heated to 220 to 300 F. Because of the localized area of heating required for guard fabrication, two simple methods are used. Here, a metal bar is being torch-heated to about 400 F.



7. When heated, the plastic is formed to the die contours and held in position for a minute or more until the heated section cools and becomes rigid. The completed section is usually fastened to the die with $\frac{1}{4}$ -in. No. 20 flat-head screws. Holes are countersunk.



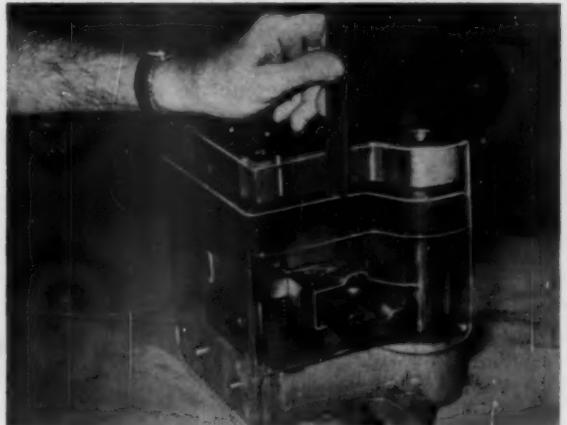
5. The plastic piece, paper protection still in place, is then held against the heated bar for a few seconds, alternating faces of the plastic until it becomes pliable.



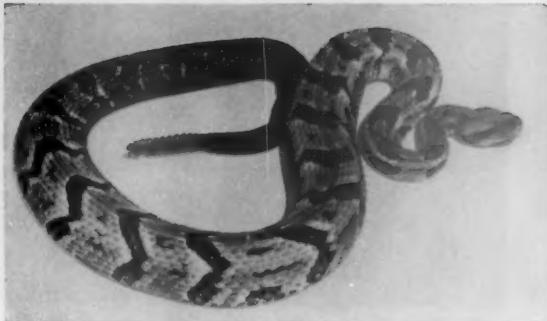
8. After marking, drilling, and hand tapping the die shoes for the attachment screen, guard sections are ready for mounting. Lower half section is usually secured with two screws on front surface of die shoe.



6. Another simple method is to heat the plastic with a lazy flame acetylene torch until the desired temperature is reached. Here again, the piece is rotated to distribute the heat on both faces. It is not necessary to impinge the flame on the plastic.



9. Completed guards are checked for compliance with size of opening standards and other operational dimensions, including maximum length of press stroke that the guard can accommodate. This information and die tool number is painted or stamped on guard.



Canebrake rattler (*Crotalus*).



Copperhead (*Agkistrodon contortrix*).

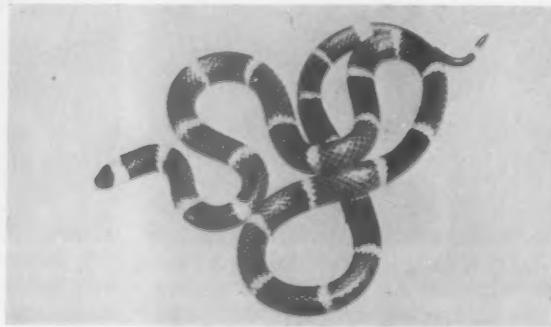
SNAKE BITE

needn't be fatal

Panic and "woods surgery" can be as dangerous as the venom. Here's some sound advice on what to do for the victim—and what not to do



Water moccasin, or cottonmouth (*Agkistrodon piscivorus*).



Coral snake (*Micruurus*).

By A. C. STIMSON,
Honorary Curator of Reptiles, Houston
Museum of Natural History and the Houston Zoo.

H. T. ENGLEHARDT, M.D.,
Humble Division, Humble Oil & Refining
Company, Houston, Texas

This article appeared originally in somewhat greater detail in the *Journal of Occupational Medicine*, April 1960. Photos of snakes by Werler for Houston Zoo.

DEATH from snake bite is uncommon. Swartzwelder¹ reports on a series of 306 cases of snake bite which he observed in Charity Hospital, New Orleans, from 1907 through 1946. In this study, only two cases terminated fatally and the last recorded death occurred in 1921.

Although more snake bite fatalities are recorded in Texas than in any other state, only 18 deaths were recorded during the period 1950-54. During this same period, 71 died from snake bite in the United States, while 144 died from stings and bites of venomous insects and animals other than snakes.²

Most snakes, particularly venomous ones, are active chiefly at night. Thus, there is increased danger during the hours of darkness. Between April and October is the period of greatest exposure. This

period coincides with warmer weather and with increased outdoor activity, such as hunting, farming, and vacationing.

Poisonous snakes in the United States are: the water moccasin, or cottonmouth; the copperhead; the rattlesnake; the pygmy, or ground, rattlesnake; and the coral snake.

Most dangerous of these is the rattlesnake which, with few exceptions, is more active in the evening. During the cooler months of spring and fall, however, one may expect to find rattlesnakes in the daytime as well as in the evening. Ordinarily they are quiescent in hot weather, and during the heat of the day seek shelter in shady places. Occasionally in summer they may be found near golf courses where it is shady and the grass has been watered.

When treating a snake bite patient, it is just as important for a physician to obtain a careful history as when treating any other abnormality. We feel that it is most important that the physician determine that the patient has actually been poisoned—even though he brings a venomous snake with him.

Diagnosis. Where the offending creature is not available, the physician must attempt to determine whether the symptomatology is due to snake bite, or to a spider, scorpion, or insect bite or sting. Occa-



Demonstrating use of suction cups on snake bite wound. See accompanying sketch for details.

sionally, such determination is impossible.

Certain observations, however, help one make a specific diagnosis. It is known that snake envenomation usually results in a gradual increase in pain, while in other bites or stings there is usually a regression of pain with the passage of time. Exceptions are in the bites of the black widow and its close relatives, the brown widow and the red-legged widow.

Occasionally, a patient presents no clinical evidence of poisoning.³ Why, then, is there no poisoning when there are visible punctures

and the snake has been identified as a venomous one?

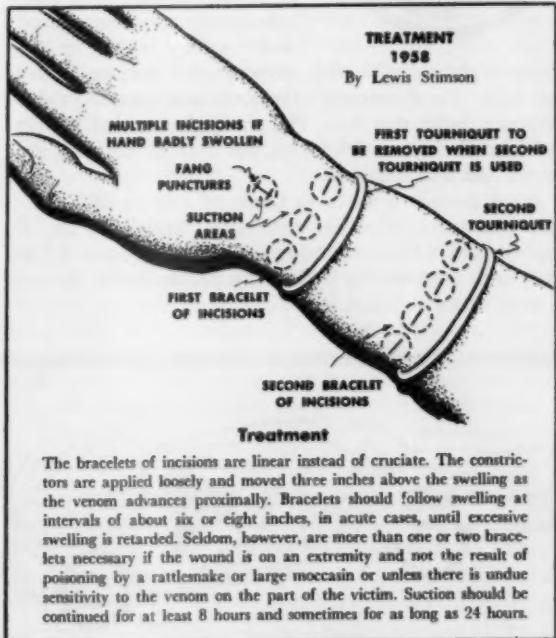
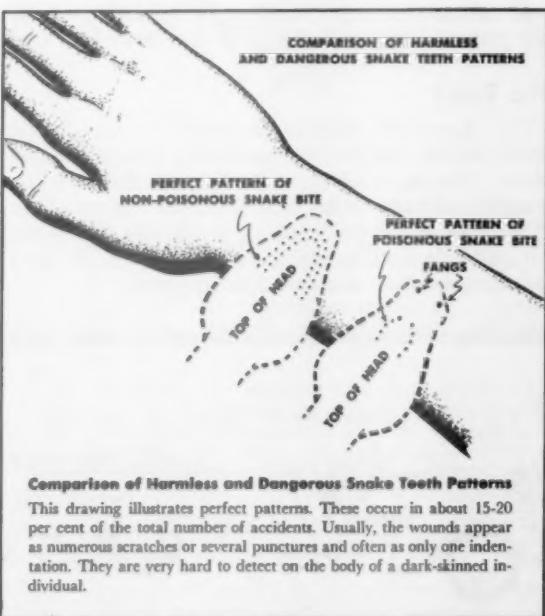
Several possibilities present themselves. First, all snakes shed their fangs at indefinite intervals and replace them. During the interval the snake may have been unarmed. This condition is unlikely, however, since the new fang drops into place almost immediately, sometimes before the old one is discarded.

Second, illness of the snake may have a great deal to do with the potency of its venom.

Third, the snake may have been so teased as to have largely dissipated its venom before biting. More frequently, though, the snake loses most of its venom on the clothing of the victim and merely touches the skin with the point of the fang but not deep enough to embed the poison-conducting orifice.

The severity of the snake bite is influenced by the age and size of the victim. Bites in the aged and very young usually carry a poor prognosis. Bites on the extremities are less dangerous, while bites on the face and neck are associated with greater danger. Shannon,⁵ among others, implies sudden death may result from injection of venom directly into a vein. It is generally held that the larger the snake the greater the amount of venom, although Stadel-

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SMART DRIVERS USE SEAT BELTS . . .

**Because They Reduce Injuries
By More Than Half . . .**

Because They Save Lives

The Quick and the Dead

There is an important difference between the two, and very often what makes the difference is a seat belt. The findings of Cornell University's Automotive Crash Injury Research confirm this. Two groups of accidents were compared. The accidents were selected to make them as identical as possible in all respects, except that the passengers in one group wore safety belts. In the group without belts, the frequency of serious injury was high. The frequency of serious injury among those with seat belts was low. The study shows that people with seat belts are 35 to 60 per cent safer than are people without seat belts.

What does this mean in terms of human life? Cornell University scientists estimate that seat belts, if widely used by the motoring public, could save 5,000 lives each year merely by holding people inside the car in case of an accident.



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How Do They Work?

In many ways the human body is remarkably durable. It can survive far greater jolts than are experienced in most auto crashes provided it does not strike, or is not struck by, some hard or sharp object. Col. John P. Stapp, director of the Air Force Aero Medical Field Laboratory, has subjected himself to crash stops from 632 m.p.h. to 0 in 1.4 seconds.

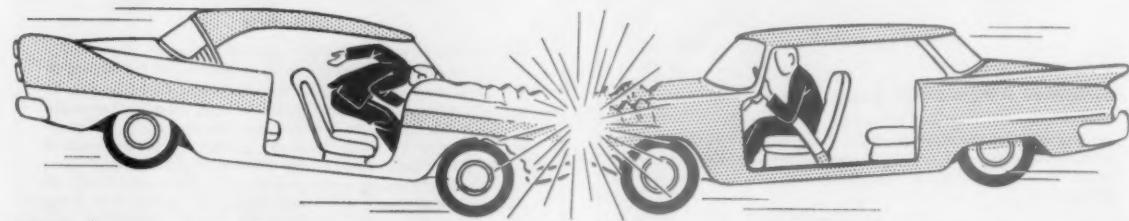
Such crash stops involve deceleration forces much higher than those experienced in most auto collisions.

Col. Stapp suffered no disabilities because he was held in his seat by safety belts. He survived, as many car drivers with seat belts do, by coming to a comparatively gradual stop.

When a car crashes, the motorist without a seat belt to stop him flies forward at unreduced speed—for a split second still uninjured—until he hits something solid. This is the impact that kills and maims. It is the violence of the *reduction* in speed, not the speed itself, which kills. Thus, even low-speed collisions can produce high deceleration rates. Seat belts help prevent injury by letting you slow down and live.

Who Says?

The American Medical Association, the Public Health Service, and the National Safety Council, among others. Existing safety programs must continue to be strengthened because the best insurance is not to have an accident in the first place. But the seat belt is the best self-help now available to cut the toll of dead and injured—if an accident does happen.



"5,000 lives a year could be saved . . ."

Why?

Careful analysis of auto accidents by crash injury research experts shows that in a traffic accident:



→ A belt helps prevent being thrown forward—toward the dashboard, for example. Even if your head does hit the dash, with a seat belt the blow is not nearly so hard. That can mean a minor injury instead of a major injury, living instead of dying.



→ You are much safer inside the car. A seat belt will help keep you there. In the Cornell study, 12.8 per cent of car occupants ejected through open doors were killed, but only 2.6 per cent of those who remained in the cars were killed. Thus, the risk of death is five times greater for those thrown from the car. Even inside the car, you are safer if you are held in place by a seat belt—as much as 60 per cent safer.

→ Everyone is safer when the driver is kept behind the wheel. In case of an unexpected crash or sudden swerve, a seat belt keeps the driver from being thrown from behind the wheel. Thus, he stays in control of the car and can prevent an additional crash.

Any Questions?

How about a car on fire or under water? Persons using seat belts are more likely to stay conscious and

are therefore more likely to be able to escape. It takes only an instant and only one hand to release the belt buckle.

How many seat belts are needed in a car? A separate seat belt should be provided for each passenger. This includes the driver and all passengers, in the back seat as well as the front. A seat belt is especially important for a youngster, since he can be thrown forward so easily by sudden stops.

Are seat belts necessary for short, local trips? Yes! Seat belts should be fastened any time the car is in motion. Two-thirds of the drivers involved in fatal accidents have their accidents less than 25 miles from home. Many people are hurt at slow speeds. More than half of all injuries occur in urban areas. That short trip to the grocery store can be dangerous, so "fasten your seat belts, please!"

How about long trips? Seat belts should be worn when riding on the open highway. The driver who sees a crash coming will slow down as rapidly as possible to make the crash less severe. Even if a collision is avoided, the fast stop can cause serious injury—unless there are seat belts to hold driver and passengers in place. As a matter of fact, many people say that seat belts reduce fatigue on long trips by reducing the strain of staying in place on *normal* stops and turns. Belts should be adjusted to a snug fit at all times.

The Right Choice

Choosing a seat belt need not be a problem, if the buyer insists on an approved belt that measures up to the safety belt standards set by the Society of Automotive Engineers. These S.A.E. standards cover such matters as breaking strength, ease of releasing buckle, and resistance to abrasion and corrosion.

See that the belt is installed according to the manufacturer's instructions that come with the belt.

The most practical style of belt fastens across the lap, with the belt securely anchored just behind the seat. A body rail or cross member provides the most reliable anchorage, because the sheet metal of the floor may be weakened by rust or corrosion. However, the belt ends can be fastened to the car floor with safety if the floor pan is in good condition and the recommendations for installation are followed.

Careful Driving Comes First

Seat belts are important personal protection equipment. Like hard hats, safety glasses, and steel-toe shoes, seat belts help decrease the severity of accidental injury or prevent injury when accidents occur. But seat belts are certainly no substitute for careful driving.

(Reprints available)

By Arthur S. Kelly, Industrial Department, NSC

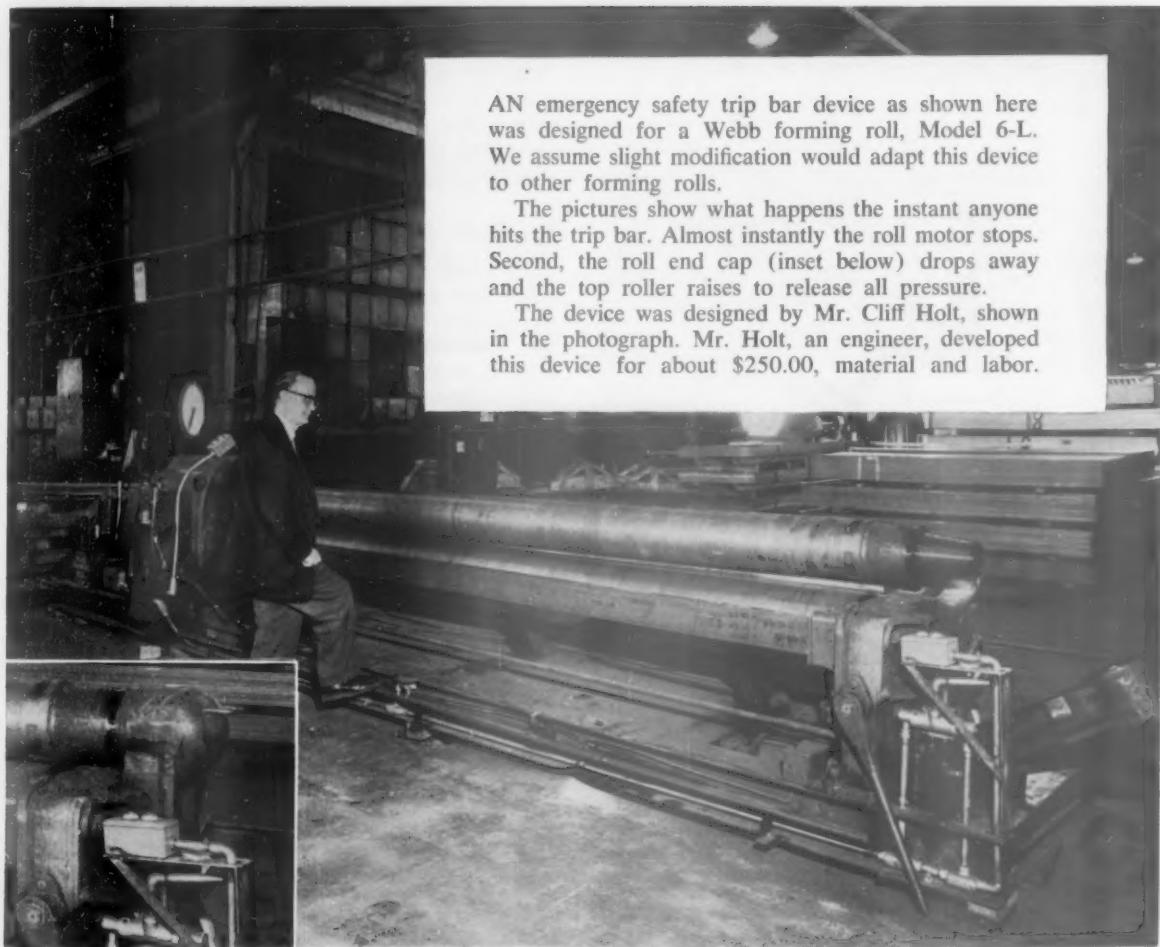


Emergency Trip for Forming Rolls

AN emergency safety trip bar device as shown here was designed for a Webb forming roll, Model 6-L. We assume slight modification would adapt this device to other forming rolls.

The pictures show what happens the instant anyone hits the trip bar. Almost instantly the roll motor stops. Second, the roll end cap (inset below) drops away and the top roller raises to release all pressure.

The device was designed by Mr. Cliff Holt, shown in the photograph. Mr. Holt, an engineer, developed this device for about \$250.00, material and labor.



THE WINNERS

The 6-month winner

H. ARNOLD PERKINS, chief of the Health and Safety Section, Point Breeze Works, Western Electric Co., Baltimore, Md., wins a 17-in. fiberglass attache case for his "Picture of a Safe Worker" idea. The safety department takes Polaroid pictures of workers dressed properly, a job being done the right way, or a neat work place. The picture is placed in a folder marked with the words, "Picture of a Safe Worker" and presented to the employee. Families like to see photos of the worker on the job.

April winner

"NO-GO GAUGE" was the winner in last month's issue. This idea, suggested by the chain maintenance crew at Bethlehem Steel Company, was for a gauge to be slipped through a hook to determine whether it has begun to spread.

Safety Slogan Contest

LEON STARK, civilian director of ground safety, Headquarters 14th Air Force, Robbins Air Force Base, Ga., is back with another promotional idea. Mr. Stark reports that it not only attracted a great deal of attention but was the most inexpensive contest he ever heard of.

Wanting all the personnel working in this headquarters to see the safety displays, illustrations, charts, and other visual aids employed, Mr. Stark needed some incentive to get the people into the room where this display was held. He prepared the following notice which appeared in the *Daily Bulletin* for one week:

SAFETY SLOGAN CONTEST

Wish you had a cigarette lighter or ball point pen? Well, here's your chance to get one and have fun doing it. Enter the Safety Slogan Contest sponsored by the Directorate of Ground Safety. All you do is obtain a safety slogan from Mr. Stark—then wait. Every Tuesday and Thursday between 0900-1000 hours, Room 300, you will be given a chance to match your permanent safety slogan by drawing from the Safety Slogan Treasure Box. If you pair them up you will be given a choice of a cigarette lighter or a ball point pen.

Mr. Stark explained that the hour 0900-1000 is the time employees take their 15-minute coffee break. He reports that everyone was talking about the contest as well as the display of materials in the room.

Safety Detector

THE WOMAN wearing the funny hat is being "safety-analyzed." Here's the way it works.

Pre-select the participants who are to be safety-analyzed. Blindfold them and bring them into the meeting room separately so they will not know what is on the board behind the chair they will sit in nor what kind of gadget is being put on their head. The operator of the switches which activate the board is concealed from both the participant and the audience. This gives an illusion that the helmet is picking up thought waves and translating them to the board.

Questions, both personal and impersonal, are prepared in advance for each participant and the questions are asked by the moderator. The participants' reactions or answers determine the section of the board which will be lit by the concealed operator.

The light on the wand on top of the hat lights up when the "thinking" light on the board is lit, during

a period of hesitation before an answer is given. The buzzer rings when the "lie" section is lit.

When 10 or 15 questions have been asked, the participant is considered to be safety-analyzed and a new participant is put into position and the process is repeated.

The number of participants is determined by the length of time allotted for the meeting. The average length of time for each safety-analysis is five minutes. The detector board is a 3 x 6-ft. sheet of $\frac{1}{4}$ -in. masonite. Signal lights on the detector board and the hard hat are operated by an employee behind the board. The contributor of this idea reports it has proved to be an excellent attention getter and that the employees participating in this game are eager to play.

Submitted by B. E. Clark, Jr., Chemical Processing Dept., General Electric Co., Richland, Wash.





Listening for Accidents

Accidents are a disease and there are definite symptoms
we can listen for and use in control measures

By EARLE S. HANNAFORD, Ph.D.

Safety Engineer, Long Lines Department,
American Telephone and Telegraph Company,
New York.

AS AN EX-PROFESSOR, I cannot resist the temptation to start defining the general nature of the problem by asking a question. That is a well-known weakness of teachers, and safety men are also experts in asking questions.

Here are some signs I'm sure you will recognize:

TYPHOID

Contagious Disease—Keep Out!
(yellow)

SCARLET FEVER

Contagious Disease—Keep Out!
(pink)

SMALLPOX

Contagious Disease—Keep Out!
(white)

DIPHTHERIA

Contagious Disease—Keep Out!
(red)

Now, here's the question: What is it that is common to all these diseases?

They are all infectious, and, above all, they have been practically eradicated during the past 30 years. Research has produced the serums and vaccines needed for their control.

Adapted from an address before the Accident Prevention Committee, Edison Electric Institute, Atlantic City, N. J., November 9, 1959.

But please note that this control has been physiological, and the serums and vaccines operate independently of the individual's wishes, once they have been introduced into the body.

Here is another sign carrying the name of a disease which kills more than any other among the age group up to the middle 20's:

ACCIDENTS

Contagious Disease—Keep Out!
(green)

Do I hear you say, "Accidents are no disease!"

Yes, accidents *are* a disease, and there is evidence that there are "accident carriers" who infect others just as there are smallpox carriers. Also, there are definite symptoms we can listen for and use in the fight against the accident disease.

Unfortunately, we have no specific infallible serum which will overcome the accident infection.

It is agreed that there is a psychological, emotional component in all diseases. The same is just as true of accidents; in fact, even more so because accidental injury so often arises from the individual's stresses and anxieties.

One symptom of accident disease is poor safety attitude. Attitude is a symptom, just as sore throat, pockmarks, and elevated temperature are symptoms of other diseases.

This is the general nature of our problem, when listening for accidents. Fundamentally, it is one we cannot lick in the same way that diphtheria, smallpox, and many other diseases have been controlled. We must treat the psychological and

emotional components of illness along with the physical, and the accident disease is no different.

Fifty years ago when accident prevention began in this country, impressive reductions were made during the first few years. Physical guarding, preparation of safe working practices, safe tools and equipment, and good working conditions, combined with matching aptitudes with jobs, paid big dividends.

During the past 25 years, it is estimated that 500,000 lives have been saved—lives that would have been lost had the former rate for occupational fatalities continued. Similarly, 50 million persons have been spared disabling injuries.

Figure I is a typical curve. Note the curve has flattened out. Such strides are no longer being made. We have reached the point of diminishing returns from physical measures. Further improvement must be made in the areas of human motivation. With all our progress we are still having 14,300 occupational deaths and 2 million disabling injuries each year.

My second objective is to personalize the problem of listening for accidents.

There are few employees who do not know what they should do to be safe. Most of those in the doubtful area are probably new employees. However, regardless of experience, all react to what we call "authority figures." These are going to play a big part in creating safe attitudes in the days to come, while we are attacking the so-called "irreducible minimum" of accidents.

Our concept of authority figures

and our reactions to them start in the home and develop in the schools and in our social contacts. Our attitudes are evidenced in our relations with the authority figures we meet on the job—the older employee, the boss, the nurse, the doctor, and the safety man. Studies have shown that their views have much to do with the creation of our attitudes. Studies show that 34 per cent of adults over 21 tend to alter their opinions to line up with those of authority figures. With high school and college seniors, it's closer to 50 per cent.

Studies of the relationship between the safety attitude of male supervisors and the actual accident experience of their employees over a five-year period have shown that, as the supervisor's safety attitude worsens, so does the accident experience of their employees. When it comes to accidents, authority figures do play a big part.

Much has been said about accident repeaters and the "accident prone." But, if we are to prevent injuries, we must detect them in the near-miss accident stage. Those who have had their first accident are the potential repeaters.

There is a similar relationship between safety attitudes of employees and their actual disabling injuries over a five-year period. As attitudes worsen, the number of injuries goes up.

Of particular interest to us is the attitude of the group which has had one disabling injury. Attitudes range from antagonistic to enthusiastic. Probably the trauma of the injury served to trigger the safety training they had received into a change of attitude.

Knowing Wasn't Enough

They all knew what to do, but knowing wasn't enough. It took something more to convert the potential into action. This could just as well be a few words from an authority or prestige figure, such as a line supervisor or a safety man.

It has been found that some people who have had one disabling injury are in that shadowy area from which they might emerge as accident repeaters. They need help, and industry tries to give that help. It should be given by the line supervisor

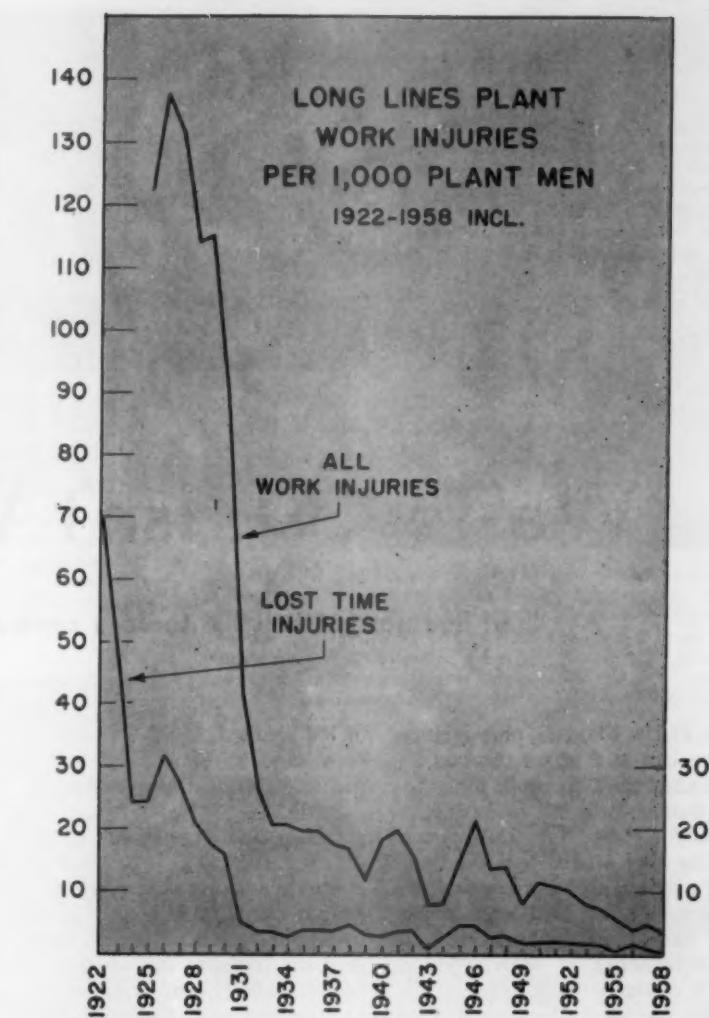


Figure 1. The accident reduction curve has flattened out in recent years. Spectacular gains are no longer made.

visor on the job with the advice and help of the safety man.

Now for the third and final phase in defining the problem of listening for accidents. To bring the problems into clear focus, it will help to talk in terms of actual cases.

Take the case of Jimmy—a restaurant worker. On that particular morning he hadn't been on the job long before he had violent disagreements with two fellow employees. He then proceeded to cuss out his supervisor when he was asked to do a routine job. A few minutes later he came to the supervisor and apologized.

Normally Jimmy was a likable, easy-going person, somewhat on the quiet side. During the morning he

asked to go to the medical department because he had a cold. While there he again exhibited his bad humor with the receptionist and the nurse.

Returning to the job, he was grinding meat in the electric grinder, when the accident occurred. Instead of using the spatula for cleaning the ground meat from the end plate, he used his finger. The hole in the end plate was large enough for his finger to slip through.

Investigation showed a family problem involving money had reached a climax that morning before he came to work. A violent argument had ensued because Jimmy didn't want to put himself any deeper in debt.

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With flags flying, the Sun Oil Company supertanker, "SS Eastern Sun" lies at dockside at Marcus Hook, Pa., after discharging her cargo. An inert flue gas system provides protection against combustion in cargo tanks, which are particularly vulnerable during loading and unloading.



Waste CO₂ Isn't Wasted

Inert flue gas protects the tanker's combustible cargo

AIR-PLUS-FUMES-plus-ignition source can add up to disaster for the tanker handling crude oil, gasoline, butane, propane, or jet fuel.

But for Capt. John D. Bowman and the crew of the Sun Oil Company's supertanker *Eastern Sun*, delivering such sensitive cargoes from ports like Maracaibo, Venezuela, to home refineries at Marcus Hook, Pa., is a routine, safe job.

Like her sister ships in the fleet, the *Eastern Sun* is equipped with an inert flue gas fire control system. This has proven itself 100 per cent effective in the firm's refineries and tankships for more than 20 years.

One of the company's 14 ocean-going tankships, the *Eastern Sun*, is 641 ft. long, weighs 30,200 tons and has a beam of 84 ft. Her cargo tanks hold 10,542,000 gals. or 251,000 bbls. of 42 U. S. gallons each.

Built by the Sun Shipbuilding and Dry Dock Company, Chester, Pa., she joined the fleet in 1955. Since then, she has logged well over 500 voyages without fiery mishap in delivering cargoes of crude or refined petroleum products.

However, safety has not always been so evident in company installations. Twenty-five years ago, the company tanker *Bidwell* blew up and burned while discharging her cargo at a neighboring Marcus Hook pier. Considerable damage and loss

of life resulted. It was not the first such accident. Similar catastrophes had also occurred in oil refineries.

Arthur E. Pew, Jr., then vice-president in charge of manufacturing for Sun Oil, had conducted research aimed at developing an effective combustion control system in refineries. His work had uncovered the practical use of inert carbon dioxide as a neutralizing agent in refinery tanks. A control system employing this principle had been installed in the Sun Oil Refineries and is still in use.

The explosion of the *Bidwell* turned Mr. Pew's attention to adapting the CO₂ system to marine use.

When hydrocarbon vapors are generated in unpurged or empty tanks or in tanks full of raw or refined combustible materials, enough air may leak in to make the tank atmosphere explosive. Hydrocarbon fumes alone may be too rich to ignite. But if 12 per cent or more oxygen is present in the atmosphere concerned, it will combine with hydrocarbon vapors to form a combustible gas.

The addition of carbon dioxide (also an inert gas) in quantities of eight per cent by volume, will smother the oxygen and prevent any combustion.

Providing a ready source of CO₂ in refineries or other land-based in-

stallations is relatively simple, as is the setting up of a carbon dioxide fire control system.

But limited storage space aboard ship and the expense involved in acquiring necessary quantities of carbon dioxide present problems in using this system on tankships.

A practical solution to the source of supply evolved from analysis of the waste flue gas discharged from a ship's smoke stack. Fuel oil burned in a vessel's boilers consists of approximately 85 per cent carbon and 15 per cent hydrogen. When burning takes place, oxygen in the air combines with carbon in the fuel to form CO₂.

Harnessing inert flue gas for use as the neutralizing agent in this fire control system gives rise to handling problems. Flue gas in the smoke stack has a temperature of about 330 F. It also contains impurities.

To introduce this gas into cargo tanks requires cleaning and cooling it to prevent explosion and contamination. An effective pump and delivery system must be set up to insure sufficient quantities of CO₂ being fed into the tanks at specific times.

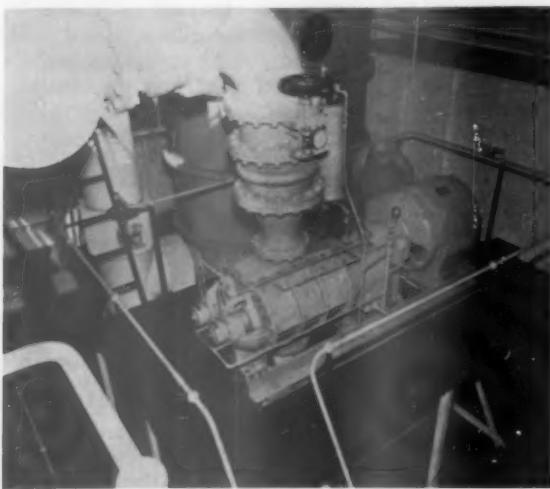
An accurate method of testing quality and quantity of gas and pressure along the line had to be developed as did an efficient alarm



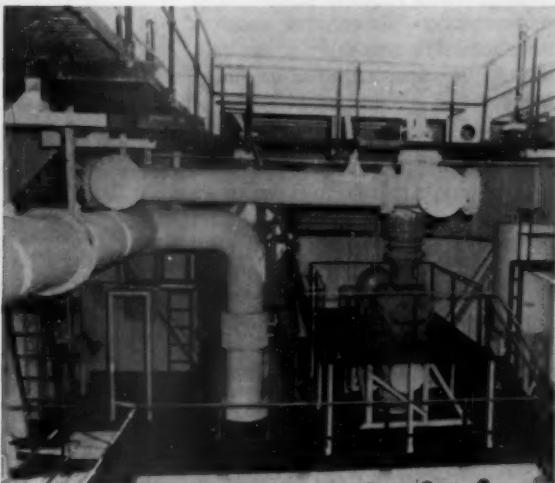
Relief crew member opens gate valve on main header admitting carbon dioxide into deck line from engine room gas pump. Gas flows along main header into smaller pipes running at right angles to it. These smaller pipes feed directly into each of the 30 cargo tanks. During loading and unloading, a constant flow of inert gas blankets each cargo compartment.



"Eastern Sun" has 10 main cargo tanks running from port to starboard. Each is divided into three compartments. Main header runs the length of deck paralleling walkway (center). It carries carbon dioxide to each of the smaller pipe lines which deliver it directly into the hatch of each compartment. Each of the small pipe lines is connected to a flame arrester, and to a vent high above the deck on masts and kingposts.



A member of the engineroom relief crew checks gauge readings on the gas pump to insure output of carbon dioxide from the scrubber (rear) through the pump to the main header. The pump has a capacity of 3000 cfm with a pressure of 2 psig. It is driven by an 800 rpm Westinghouse electric motor.



In engine room, inert flue gas is drawn from boilers and delivered through 16-in. pipe (left) to scrubber (center) where it is cleaned and cooled.

system in event of breakdown in any part of the routine.

The company developed a six-step handling system to produce, prepare and propel flue gas through a marine fire control system. These steps are:

1. Generating—in main boilers.
2. Scrubbing—cleaning and cooling in a bubble-tower type tank.

3. Pumping—by rotary positive displacement gas pump from supply through scrubber to deck distribution.

4. Distributing and venting—through pipe manifold system connecting engine room with cargo tanks.

5. Testing and recording—quality, quantity and distribution of gas in cargo tanks, boilers, and burners.

6. Warning—alarm system indicating failures, pressures, or vacuums in units along the line.

Boilers: The ship's main boilers furnish the source of supply of inert flue gas. The percentage of CO_2 in the smokestack gases is regulated by controlling the volume of air delivered to the burners. The faster

—To page 75

FIRE PREVENTION AND CONTROL ON CONSTRUCTION SITES

*Copies of this data sheet will be
available for order within 30 days*

Introduction

1. Serious fires on construction projects endanger workmen, damage material and equipment, delay the work, and may cause structural damage which requires removal and reconstruction. Even the smallest accidental fire results in some loss, if only the time required to extinguish it.

2. Fire hazards are common in construction operations. Combustible materials that go into the structure and for use in temporary structures, shoring, bracing, and false-work are distributed extensively around the job. Flammable liquids and gases (fuel for equipment and heaters, welding gas), lubricants, paints, cleaning fluids, and solvents are stored, handled, and used.

3. When existing plants are being expanded, altered, or repaired, supplies of chemicals, gases, and other process ingredients may present additional fire hazards. In such instances, arrangements must be made with the owner for eliminating or minimizing the fire hazard of existing facilities which extend into the construction area.

4. Also to be considered during alteration, repair, or expansion work is interference with existing fire controls that protect a structure and its contents during normal use. For example, sprinkler systems may be partially shut off or disconnect-

This Data Sheet is one of a series published by the National Safety Council, reflecting experience from many sources. Not every acceptable safety procedure in the field is necessarily included. This data sheet should not be confused with American Standard Safety codes, federal laws, insurance requirements, state laws, rules and regulations, or municipal ordinances.

ed, or openings may be cut through fire walls. It is important that both the contractor and the owner plan in advance for provision of temporary fire control facilities to function at such times.

5. Most projects have temporary structures, such as a field office, tool and storage sheds, repair shops, and change rooms, built of combustible materials. In isolated work camp projects, additional fire hazards are found in employee housing, kitchen and mess hall, recreation, commissary, and other living facilities.

6. The possible sources of ignition on construction jobs are numerous. They include welding and cutting, open fires for rubbish and waste disposal, salamanders and other temporary heaters burning solid, liquid, or gaseous fuel, temporary and defective or inadequate electric wiring, static electric sparks, sparks from

electric motors, internal combustion engines exhaust, and uncontrolled smoking. However salamanders, other open-flame heaters, and welding and cutting operations are the sources of most fires on construction sites.

7. Not all the fire hazards mentioned above are found on all jobs. Those which do apply and others peculiar to the specific job should be considered in the preplanning stage, and the appropriate precautionary measures should be taken. Help with over-all planning may be obtained from the fire insurance company or broker.

Job-Site Layout

8. A job-site layout should be made as a part of the plans. This layout should indicate the location and arrangement of all temporary structures, materials storage areas, equipment and vehicle parking areas, and service areas. Free accessways, roads, and corridors should be provided to permit unhindered passage for fire fighters and their equipment.

9. The layout should be designed to limit the spread of a fire. Combustible and noncombustible materials should be stacked or piled alternately in the storage area. The field office, tool sheds, and other temporary structures should be separated from one another, with the areas between these structures

TYPE OF EXTINGUISHER	FOR WHAT KINDS OF FIRE	CONTENTS	HOW TO START	RANGE AND DURATION
SODA-ACID	Wood, paper, textiles, etc.	Water solution of bicarbonate of soda and sulfuric acid.	Turn over	30 to 40 feet 50 to 55 seconds (2½ gallon size)
PUMP TANK		Plain water	Pump by hand	
GAS CARTRIDGE		Water and cartridge of carbon dioxide	Turn over and bump	
FOAM	Wood, paper, textiles, etc. Oil, gasoline, paint, grease, etc.	Water solution of aluminum sulfate and bicarbonate of soda	Turn over	DANGER: Do not use these water base extinguishers on live electrical equipment
CARBON DIOXIDE	Oil, gasoline, paint, grease, etc.	Carbon dioxide	Pull pin and open valve	6 to 8 feet about 42 seconds (15 lb. size)
VAPORIZING LIQUID	Live electrical equipment.	Carbon tetrachloride and other chemicals. CAUTION: Avoid breathing vapors from extinguisher, especially in small, closed places.	Turn handle, then pump by hand	30 to 30 feet 40 to 45 seconds (1 quart size)
DRY CHEMICAL	NOTE: If nothing else is available, these extinguishers may have some effect on small fires of any kind	Bicarbonate of soda with other dry chemicals and cartridge of carbon dioxide	THREE TYPES Pull pin or collar, then: 1. Open valve, or 2. Press lever, or 3. Turn over & bump, then squeeze nozzle.	About 14 feet 22 to 25 seconds (30 lb. size)

Figure 1. Portable fire extinguishers.

used for storage of noncombustibles. Sheds and open areas in which flammable liquids or gases are stored and shops in which they are used should be isolated.* All locations for water supply and fire extinguishers should be designated, and the proper type of fire extinguishers should be indicated (Figure 1).

10. Insofar as is practical, noncombustible materials or materials treated to make them fire-retardant should be used for all temporary structures, scaffolding, shoring and bracing, hoist towers, walks, ramps, and stairs. Fire-retardant paints approved by fire underwriters may be used where it is not practical to use noncombustible or fire-resistant ma-

terials and where painting is necessary or desired.

11. For protection against both weather and fire, open structures and materials in open storage should be covered with flameproofed tarpaulins or other nonflammable coverings. Flameproofing of tarpaulins must be redone periodically because most flameproofing materials leach out.

12. Drip pans filled with sand or other noncombustible material should be specified for oil sheds and work shops to catch oil drippings.

Fire Prevention Program

13. It is the responsibility of the project manager or job superintendent to carry out the provisions of the job-site layout. In addition, it is his responsibility to develop a fire

prevention program to be followed throughout all phases of the work and to requisition the necessary fire-fighting equipment.

14. To help the project manager or job superintendent fulfill these responsibilities, he should be supplied with copies of pertinent publications, such as the National Fire Protection Association's Standard No. 10, *Portable Fire Extinguishers*,* and Standard No. 241, *Building Construction Operations*, and the American Standards Association's *Safety in Welding and Cutting*, Z49.1.

15. The success of the fire prevention program depends upon the cooperation of all personnel on the job. To assure that the program will be effective, the project manager or job superintendent should see that the following steps are taken:

- Establish a definite procedure for safe handling and dispensing of flammable liquids and gases.
- Prohibit smoking in areas containing readily flammable materials; provide fire-safe smoking areas nearby when necessary.
- Prohibit fueling of equipment while the engine is running; prohibit fueling within a building, if possible.
- Set up schedules for regular inspections to detect fire hazards (local fire department personnel may help with these inspections).
- Take immediate corrective action upon detection of a fire hazard.
- Display posters and warning signs to draw attention to fire hazards.
- Instruct workmen, particularly key employees and watchmen, in the use of fire-fighting equipment.
- Establish a regular maintenance program for fire-fighting equipment.
- Set up an effective method for sounding a fire alarm, and post emergency numbers (fire, police, etc.) at each telephone.

16. Major fires require fire-fighting equipment that is usually available only from local fire departments. Therefore, on isolated large projects where no outside help is

*For storage requirements, see *Handbook of Fire Protection*, Crosby-Fiske-Forster, National Fire Protection Association.

*Also published by the National Board of Fire Underwriters.

available, it may be necessary to provide for the entire fire-fighting program, including equipment and personnel to operate fire trucks and pumps, to handle hose, to use equipment which may be needed in rescue operations (respiratory protective equipment, fire-protective attire, etc.), and to follow the best methods of fire extinguishment.

17. Under these circumstances, fire-fighting brigades drawn from construction personnel should be formed. Qualified persons should train the brigades.

18. Ladders, fire axes, fire blankets, and other equipment should be maintained in strategic locations, properly identified for emergency use only. Protective clothing and other accessories for the program should also be provided.

Cooperation with Local Fire Department

19. On any job, and particularly on jobs which are large or spread over extensive areas, it is desirable to confer with members of the local fire department, to acquaint them with the accessways and the location of water outlets and other facilities, and to alert them to any peculiar or exceptional fire hazard.

20. A local fire department, where available, should always be called for every emergency involving fire (Figure 2). A few minutes saved at the start of a fire may make the difference between a minor and a major fire loss. Many

major fire losses are due to the fact that the local fire department was not called until after the fire grew out of control.

Housekeeping

21. Good housekeeping tends to remove fire sources and makes possible easier control when a fire occurs. Daily removal and safe disposal of combustible scrap, oily rags, rubbish, and other debris are essential.

22. Distribution of construction materials to work areas should be limited to the amounts required for continuous production without overstocking. Piles and stacks should be kept orderly. Aisles, walkways, stairs, ramps, and other passageways should be kept free of all obstructions.

23. Good housekeeping is especially important during the finishing stage—one of the most fire-hazardous periods in building construction. During that period the work force usually is small and dispersed throughout the project. Paper wrappings, cartons, and other combustible packaging materials may be scattered about the premises. Such materials should be collected promptly and disposed of in the established manner.

Rubbish Disposal

24. Suitable areas should be designated for the burning of rubbish and scrap material. These areas should be constantly attended until

the fire has burned out or has been completely extinguished.

25. The burning of lunch wrappings or other rubbish in salamanders or other heaters should be prohibited.

Exit Facilities*

26. Escape facilities for construction workmen may be inadequate at certain stages of erection. For example, if concrete is being poured on an entire floor of a multi-storied building, the design exits (stairs) to the next lower floor may be blocked by false-work so that a fire on the lower floor would trap the workmen on the upper floor. A condition in which workmen have no means of escape in case of an emergency should never be allowed to develop. If necessary, temporary escape facilities should be provided.

27. Storage and work sheds or enclosed areas in which flammable materials are stored, handled, or used should have sufficient exits, located remotely from one another, to allow unhindered and speedy escape in case of an emergency.

Salamanders and Other Heaters

28. Salamanders and other heaters should be well constructed with a stable base so that they cannot easily be overturned. They should be set on fireproof material, such as insulated sheet metal plates or sandboxes to catch ashes, sparks, and oil drippings. There should be a minimum of 4 inches of open air space between the bottom of the salamander or heater and the metal plate or other fireproof filler material in the box on which it stands.

29. A horizontal and vertical distance of at least 6 feet should be maintained between a salamander or other heater and any rigid combustible material or another salamander or heater. A horizontal and vertical clearance of 10 feet is necessary for tarpaulins and other combustibles that are not fixed.

*Standard No. 101, *Building Exits Code*, National Fire Protection Association, specifies the number, size, and arrangement of exit facilities sufficient to permit prompt escape of occupants from buildings or other structures in case of fire or other condition dangerous to life. These specifications refer to completed structures.



Figure 2. Fire fighting on a construction project.

30. At no time should salamanders or other open-flame devices be suspended from the ceiling or other overhead support.

31. Salamanders and other open-flame heaters should be carefully attended at all times while in operation. Efficient combustion should be maintained in these devices to keep smoke, fumes, and soot at a minimum. When the devices are used in confined areas, the products of combustion should be vented to the open air. The fires should be extinguished or the devices removed to a safe location whenever an area in which they are being operated is vacated.

32. Fuel for salamanders should be restricted to oil, coke, coal, and liquefied petroleum gas (LPG). When first lighted, coal and coke fires usually give off excess smoke and fumes. Where practical, units using these fuels may be lighted in the open and then placed where they are to be used after the fire has burned down. This practice, however, entails the danger that the unit may be dropped and the burning fuel spread over a large area.

33. Liquefied petroleum gas or oil-burning blower-type heaters are preferable to salamanders. When LPG is used as fuel, it should be handled, stored, and distributed in accordance with the recommendations of the manufacturer and of NFPA Standard No. 58, *Liquefied Petroleum Gases*.* Bottles of gas should not be stored in confined places.

34. Workers often bring their own hot plates for coffee-making and lunch-warming (even cooking) onto the job. Such items should be used only on approval of the project manager or job superintendent and in compliance with applicable codes.

Welding and Cutting

35. Fires resulting from welding and cutting are often delayed in starting. Areas in which welding or cutting has been done should be watched for one-half hour after the operation has been completed. The fire hazard may be reduced by wet-

ting combustible materials in the vicinity both before and after welding or cutting is done or by erecting noncombustible barriers between the operation and the combustible material.*

36. If welding or cutting must be done over wood floors, they should be swept clean, wet down, and then covered with asbestos blankets, metal, or other noncombustible covering. Hot metal and sparks must not be permitted to fall through floor openings onto combustible materials below.

Spontaneous Combustion

37. Spontaneous combustion of work clothing and rags impregnated with oil or grease has been the source of many fires. When such clothing and rags are discarded, they should be deposited in covered metal containers until safely disposed of with other rubbish. Workers should hang their work clothing in a manner to allow circulation of air around it.

Portable Fire Extinguishers

38. Where elimination of fire hazards is not possible, the fire potential can be reduced by analysis of the factors involved and provision of the indicated fire-extinguishing equipment. The National Board of Fire Underwriters reports that of all fires extinguished, 85 per cent are put out in the incipient stage by portable fire-fighting equipment.

39. The correct type of fire extinguisher for the fire hazard anticipated should be located near each potential source of fire.** Figure 1 shows types of extinguishers and their applications.

40. Fire extinguishers should be maintained in such fixed locations as the field office, tool sheds, shops, and service areas, and should be provided at other strategic locations throughout the job as the work progresses.

41. Extinguishers located at structures should be protected from

the weather but readily available from both inside and outside, even though the entrance is locked. To meet these conditions, an opening slightly larger than the extinguisher can be cut through the wall next to the entrance door. A shelf then can be installed just inside the opening to hold the extinguisher, and the opening can be covered with glass or a spring-closed door. Bright paint or a "Fire Extinguisher" sign, or both, will identify the location.

42. Where there are ignition hazards, such as those involved in welding and cutting, rubbish fires, salamanders, blow torches, and other open flames, a suitable fire extinguisher should be kept at the location and moved with the operation. Some operations, particularly welding and cutting in the vicinity of combustible materials, may also require a fire watchman.

43. Each piece of mechanical or automotive equipment should be equipped with a dry chemical, carbon dioxide, or vaporizing liquid extinguisher.* All operators and drivers should be instructed in the use and limitations of the extinguishers on their equipment. Additional ex-

*Some states prohibit the use of vaporizing liquid extinguishers.

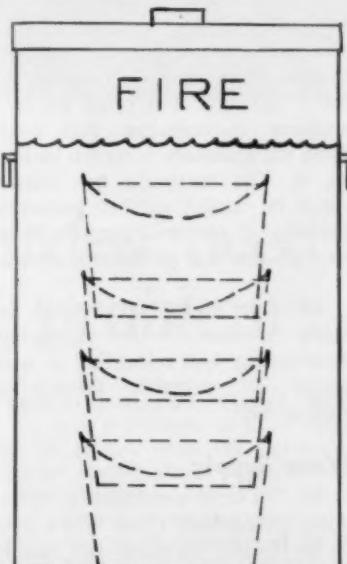


Figure 3. Nest of buckets in a water-filled container—a simple but effective fire-fighting device for incipient wood-paper-textile (Class A) fires. Buckets of water or a hose stream of water should not be used on live electrical fires.

*Also published by National Board of Fire Underwriters.

*See *Welding Handbook*, American Welding Society, or *Safety in Welding and Cutting*, Z49.1, American Standards Association, for additional recommendations.

**See NFPA Standard No. 10, *Portable Fire Extinguishers*, for installation, maintenance, and use of such extinguishers.

tinguishers should be located in the operating, maintenance, and service areas.

44. *Vaporizing liquid extinguishers must not be used in small rooms, closets, or other confined spaces. Even when this type of extinguisher is used in the open, the operator should avoid breathing the vapors or gases liberated.**

45. A practical, economical, and easily moved piece of fire-fighting equipment is a nest of four 12-quart pails (preferably with round bottoms to prevent their being used for other purposes) in a 20-gallon galvanized can full of water (Figure 3). Pails of water can be of value in combating small Class A (wood, paper, textile, etc.) fires, but water in pails or as a hose stream should not be used on fires involving live electrical equipment.

46. In winter, calcium chloride should be added to the water in any type of water extinguisher to prevent freezing. (Seventy-four pounds of granulated 75 per cent calcium chloride added to 20 gallons of water will prevent freezing down to -10°F .) Protection against the corrosive action of calcium chloride on a metal container must be provided, unless the container is made of brass.

47. A container to lessen chance of upset and discharge or possible damage to portable fire extinguishers is desirable but often poses a problem. A container that holds three extinguishers is shown in Figure 4. The triangular box cannot easily be used for other purposes. Painting it red will identify it as part of the fire protection system.

48. One individual should be made responsible for servicing, maintaining, and relocating as necessary all portable fire-fighting equipment.

Water Supply

49. On large construction operations, particularly those which may be in isolated locations not readily served by existing fire hydrants, an adequate supply of water for fighting fires should be provided. If water lines and outlets are not con-

*See Brochure No. 182M, *Hazards of Vaporizing Liquid Extinguishing Agents*, National Fire Protection Association.

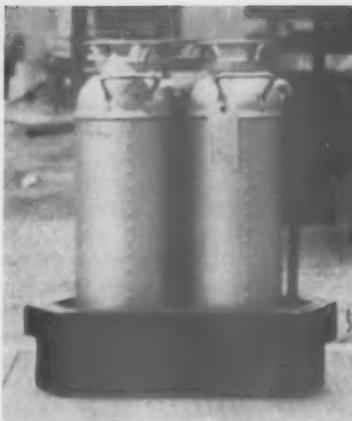


Figure 4. Left: Triangular box used to nest fire extinguishers at location on construction site. Right: View of box showing triangular design.

venient to the job, permanent lines should be brought in at the beginning of the work. Enough outlets should be provided to ensure an adequate water supply to all areas with fire hazards. The local fire department should be consulted to assure that fittings to fit its equipment are installed, or that adapters be provided.

50. On multistoried buildings, the riser should follow as closely as possible to the permanent structure and outlets, with valves, hose, and nozzles installed at each floor. Where installation of the permanent riser is not practical and the fire hazard is severe, a temporary riser should be erected. Watchmen and key personnel must know the location of switches, pumps, and valves essential to charging the riser.

51. It may be necessary to install a water distribution system, including pumps and piping, using an available year-round water source (lake, river, wells) for the water supply. Pump houses should be isolated from other structures to prevent damage from machinery or falling materials and to prevent fire, smoke, or water from forcing the operator to abandon the pump.

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Alert safety directors have shown management . . .

Why nuisance hand injuries need not be a "hot weather" problem

For many of America's top-rank companies, summer used to signal a slump in safety. A rise in temperature produced a rise in the rate of nuisance hand injuries — the kind that cost time and money.

When alert safety directors investigated, the reason was evident: Employees dislike wearing hot gloves in hot weather. And the finest work gloves cannot protect if they're not used.

To help solve this problem, Edmont has developed over the years many

types of cooler gloves that "breathe." To its many palm-coated, fabric-back styles, Edmont has now added this remarkable new "air-conditioned" glove, the Perforated Werx.

Normal hand movement pumps cooling air through the perforated back for maximum comfort. Yet dirt admission remains low. The gloves are made of Edmont's vinyl-impregnated "miracle fabric" and give 5 times longer protection than regular 8 oz. cotton gloves. They are also sure-gripping and 100% machine washable.

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Edmont 
JOB-FITTED GLOVES

Dress Up!

**Wearing out torn, dirty clothes on the job
is inviting fire, accident and skin infection**



Clothes do make the man. The same employee posed for both pictures. The oil-soaked outfit at the left could ignite easily or cause a skin infection, tripping or catch in machinery in addition to loss of self respect and pride in the job. A cleanable or disposable cap is often desirable and elbow-length sleeves are specified for some jobs.

CLEAN, well-designed work garments in top condition—free from rips, tears, missing buttons or other defects—can reduce accidents. Dirty, poorly-designed, badly-maintained work garments invite mishaps.

Built-in accident hazards in work clothing may be waiting traps for the unwary in moments of carelessness or emergency. Many such hazards are commonplace and may not be recognized as dangerous.

Dirty work clothing, for example, is more than an eyesore. It breeds accident and health hazards. Dirty or oil-soaked work garments often cause skin rashes, irritations, and other forms of dermatitis.

Such clothing may harbor bacteria and germs to infect minor cuts, skin abrasions, or burns. Once infected, minor injuries quickly become dangerous. To avoid the com-

mon, ever-present hazard of dirt, work clothing should be changed frequently and laundered or cleaned to sterile condition.

Missing buttons are another accident hazard which may not be recognized as such. If a workman has lost a button on the cuff of his shirt sleeve, the dangling cuff may easily get caught in the jaws of moving machinery and drag the wearer in after it. A lost arm or life can easily result. Missing buttons should be replaced immediately.

Tears and rips in work clothing are also potential causes of accidents. Torn clothing can get caught in moving machinery, or on some projection, and lead to a nasty fall. Mend tears or rips.

Cuffs on trousers are dangerous, since they can also catch on projections and cause crippling falls.

Oil or chemical-soaked clothing (or clothing soaked with any flammable material) can easily lead to fatal burns. Oil or chemical-impregnated work garments may also cause painful skin irritations and rashes.

Clothing soaked with flammable materials should be changed frequently and laundered at high temperatures to completely remove dangerous irritating foreign materials. This safety rule also applies to work clothing soaked in any toxic material.

Floppy pockets, dangling ties, loose apron strings, and other such items of clothing are hazardous on at least two counts: loose or dangling ends may catch in moving machinery; and they may get caught on something and cause a fall.

Defective, poorly-designed, ill-fitting clothing should not be worn to work. It is false economy to tolerate worn-out or dirty clothing or to allow employees to wear to work old clothing not designed for safety under on-the-job conditions.

Street clothing may be safe enough on the street but may be an accident hazard when worn on the job.

Protective clothing. Under conditions indicating their use, flame-proof, acid- or fire-resistant garments and safety shoes are indispensable aids to safety.

Know-how, plus vigilance and common sense, can prevent accidents which might be caused by dirty, ill-fitting, torn, flammable, defective clothing.

Use of clean, well-designed, well-fitting work garments not only prevents accidents, burns, and skin infections but increases the wearer's self respect and makes a good impression on those who see him.

THINGS TO AVOID IN WORK GARMENTS

1. **Dirty garments**
2. **Oil or chemical-soaked clothing**
3. **Missing buttons**
4. **Cuffs on trousers**
5. **Loose or ill-fitting garments**
6. **Poorly maintained garments**
7. **Loose belts, dangling ties, fancy or ill-designed features**



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(Fiction)

THE DIARY OF A SAFETY ENGINEER

By BILL ANDREWS

On the surface, the new plant looks like an ideal setup for safety. But the man who's expected to keep accidents out of it lets down his hair to our Safety Engineer

THE MODEL PLANT

May 2, 1960

FINALLY, after months of construction work and more months of installation of machinery and equipment, the Lommerton Corp. plant has opened on the project.

It is everybody's pride and joy—the biggest plant on the whole project, with the most employees. What is more, it is the biggest company to locate one of its principal plants here, and its plant executive staff is a group of able men, most of them young, who have come up in the atmosphere of the main Lommerton plant back East—the plant that developed out of old man Lommerton's electrical equipment shop, and which grew, under the drive and genius of young Carl Lommerton into an industrial concern that is a major competitor of the big, old-line companies in the field.

These young Lommerton executives—the men who have been given responsibility for this whole mid-western venture—are all stamped with the Lommerton brand. I don't mean that they are alike—their vice-president looks and acts like a financier; their superintendent is a tough shop man and looks it; their district sales manager is all salesman. But they have something in common—competence, self-control,

a kind of smoothness under the openness.

They brought their own safety man with them—Bill Malloy. I've known him casually for eight years or so—from National Safety Congresses, a few committee meetings, and once, when I was roving safety man for Eastern Enterprises, I visited the home plant of Lommerton and Bill, the Number Two safety man, took me over the property. Bill's about 35, a big, bluff sort of guy. He knows the book end of safety—knows it well. He has the Lommerton look, too, the look of self-confidence and energy and competence.

I suppose all of us on the project made excuses to visit the plant soon after it got into operation. We wanted to admire the ranks of magnificent automatic machinery, to study the brilliantly engineered conveyor systems, to gape at the brilliant color schemes blazing under the finest lighting installation any of us ever saw. And maybe, after all, we wanted to rub up against the Lommerton team of hotshots in hope that some of their success might rub off on us.

After Bill's top assistant had taken me around, and I had done obeisance to sublime plant engineering, I was escorted back to Bill's

office, a three-room layout between the plant medical center and the personnel office. His own room was an engineer's dream—a small desk with large drawers, a well-equipped drafting table, a clever set of swinging brackets to hold half a dozen statistical wall charts, and a small conference table, just big enough for four men to sit around a spread-out set of plans and still have room for their coffee cups.

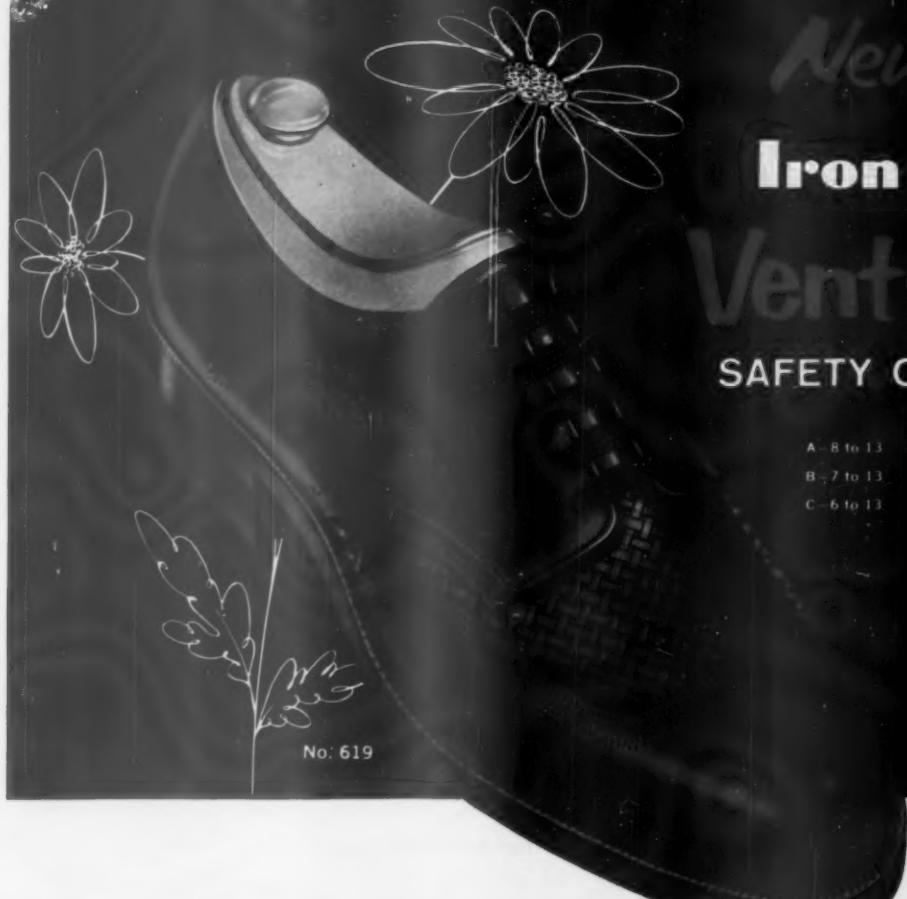
I gave him my heartfelt compliments for the wonderful setup he had, the engineering of the plant, the intelligent design of his office, and so on. He accepted the compliments with apparent pleasure. But when his assistant made a move to sit down beside me at the conference table, Bill snapped at him, "I'll talk to our friend," he said. "You go down to the shop floor. These first few weeks, I want the men—particularly the new men—to see a safety man with them. Get on with it."

The assistant (a local recruit and not yet polished to a Lommerton sheen) flushed, said goodbye to me, and went out.

Bill looked at me with a wry half-smile. "Indoctrination," he said. "The boy looks good, but he needs toughening. I'll try to win his friend—

—To page 167

For cool, comfortable summer wear



New
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Vent-Aire
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A - 8 to 13 D - 6 to 13
B - 7 to 13 E - 6 to 13
C - 6 to 13 FEE - 6 to 13

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This shoe really breathes with every step. It's ventilated throughout.

Fine materials including soft, supple leather, flexible leather soles, and long wearing rubber heels all contribute to comfort and long life.

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Iron Age SAFETY SHOES

1205 Madison Avenue, Pittsburgh 12, Pa.



news briefs

A place to stand

Workers who were faced with the problem of crossing a trestle to attach car pullers now have good footing, thanks to the use of steel grating between the rails and beside the tracks. The plant's workers can handle twice as many cars with the grating as could be handled before installation.

Bit his tonsil

A utility crewman repairing storm damage late at night ran into a guy wire and knocked his lower plate down his throat. Another line hit him in the throat and caused the store teeth to lacerate his left tonsil.

Flying stovepipes

Just as we come within passing distance of controlling air pollution from automobile exhaust, jet aircraft emissions begin to cause serious trouble. Jets smoke heavily on take-off and landing.

Neater, faster, safer

Electrical maintenance supervisors instituted a safety program that demanded no hot work. They decreed all boxes were to be equipped with terminal blocks and the wires cut and dressed down for neatness. Circuits can be traced much faster with the simplified appearance of the pull boxes.

Under the weather

Industrial physicians in the Alps region get weather reports to warn them of possible accidents. The relationship between weather changes and human behavior in this area is so widely recognized that crimes committed during the windy season are judged more leniently.

Burning question

As more cities ban open-air burning, ways are found to incinerate waste without harmful emissions. Several cities have solved the junk automobile burning problem with an installation that works like a car wash. The derelicts are automatically ignited at one end and automatically quenched at the other, ready for the baler. A precipitator

traps smoke particles, which are washed out daily. One installation cost the city \$185,000. Operating cost is 65¢ a car. A unit handles 15 cars an hour.

Standards updated

The American Standards for window cleaners, for head, eye, and respiratory protection, and for accident prevention signs have been revised. The window cleaners standard now recognizes new corrosion-resistant alloys. Plastic eye protectors are included in the new eye protection information. Illustrations are included in the signs standard.

Brief report

A California accident report read: *How did the accident happen?* Seen the boss coming. Turned around and started to work fast. Pulled back. *What do you recommend for preventing this type of accident?* Don't get excited when the boss comes around.

Another vacation hazard

As camping season approaches, employees planning to use camping trailers should be warned of the health hazard of some space heaters. One bottled-gas heater, a wall panel unit of 8,000 BTU capacity, with a 13 x 19-in. opening, is reported to build up dangerous concentrations of carbon monoxide. Manufacturers have modified some of the installations, but many more have not been found.

Dry ice isn't

Isn't really ice, that is. It is not dry frozen water, as some people seem to think. It is solidified carbon dioxide, and it can kill without warning. Another refrigerator incident reported recently points up the need for continuing education on this point. A man who entered a walk-in refrigerator almost collapsed from the gaseous carbon dioxide given off by dry ice in ice cream cartons. Perhaps we need a better name for dry ice.

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Beautiful scenery—tough driving. Drivers for Simpson Redwood Company average 58,000 miles a year on the twisting highways of northern California.

Trucks Are Clean, Drivers Are Safe

"THE FACT that our trucks are clean and our drivers safe and courteous has resulted in considerable recognition," says Gilbert L. Oswald, vice-president and general manager of Simpson Redwood Company, Arcata, Calif. "We continually receive letters from motorists who comment on the consideration shown by our drivers. Many are from out-of-state tourists who drive the Redwood Highway, and even from law enforcement officers."

Simpson trucks annually travel 1 1/4 million miles over the winding highways of northern California, and in six years its drivers have been involved in only two accidents in which they were responsible.

The company's 22 on-highway drivers annually average 58,000 miles each. These drivers are responsible for delivering thousands of loads of redwood lumber from the mill in Klamath to the Arcata Remanufacturing Plant, and veneer from the Klamath veneer plant to the plywood plant in Eureka.

Most of the mileage is recorded on the run from Klamath to Arcata, 65 miles south. The 130-mile round trip on heavily traveled U. S. Highway 101 takes about five hours, the Eureka trip a little longer.

With such heavy traveling and the performance demanded of these trucks, maintenance and inspection are of utmost importance. As part

of the schedule, each driver inspects his truck carefully before starting his shift. The truck is driven to a pit and both the driver and service mechanic conduct a safety inspection as outlined by the Interstate Commerce Commission which takes about 15 minutes. Because of the two shifts, each vehicle is thoroughly inspected twice a day.

Trucks are also inspected when lubricated twice weekly. A minor lubrication is scheduled for Wednesday; a major one for either Saturday or Sunday. Drivers have orders not to move any truck unless it is in perfect condition. Only one minor road failure in more than 500 trips a month is the average.

Early in 1955, when spring-loaded brakes were developed for rear wheels to prevent runaways in the event of air pressure failures, Simpson equipped its entire fleet with this added safety device. Speedograph recording instruments have been installed on all trucks. A private company with patrol cars submits some 100 reports a month on the performance of Simpson drivers. New trucks for the fleet are purchased regularly.

Once a year the company holds a dinner in honor of all drivers who have completed a year of operation without a chargeable accident. This has usually been the full force of 22 drivers.

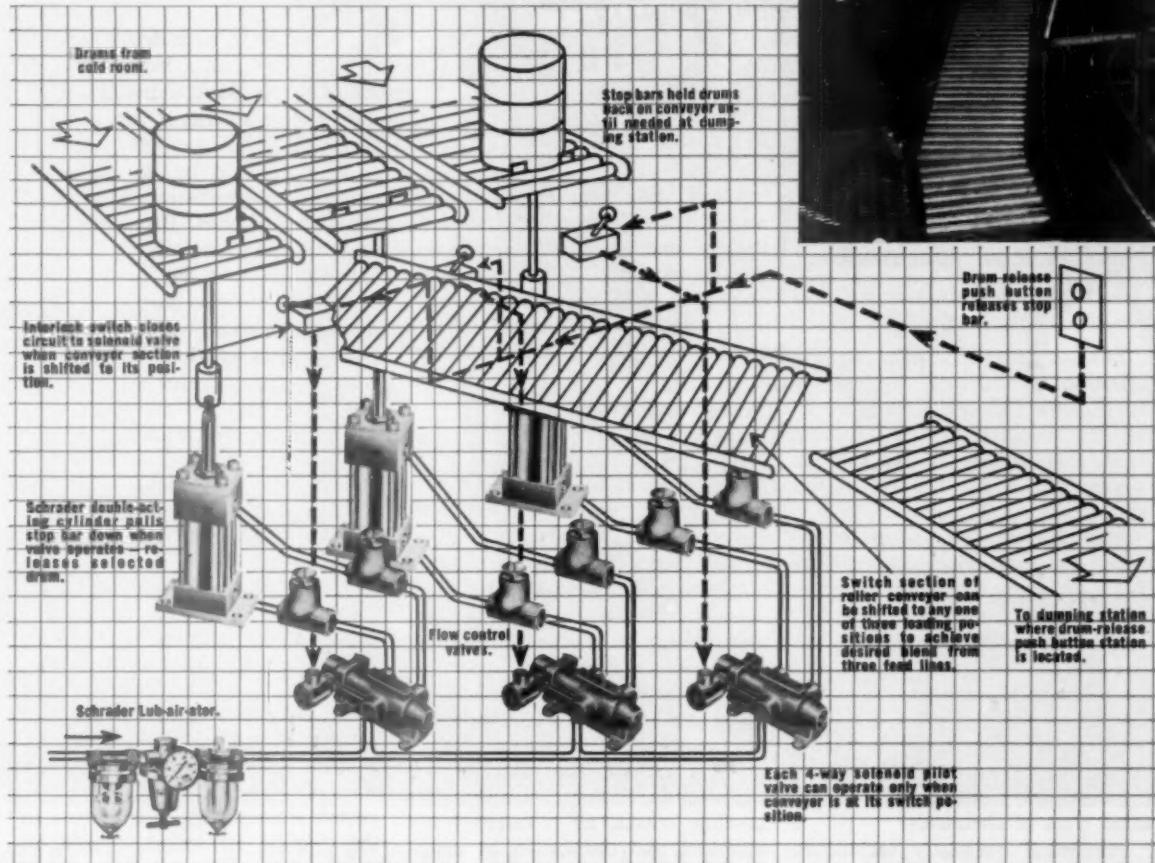


Loading a trailer on a truck for the return trip to Klamath keeps it out of the way of traffic.



Fork-lift loading and unloading of lumber speeds handling operations and minimizes delays for drivers.

Processors automate even heavy work with air. In a complex frozen juice concentrate blending operation, Plymouth Citrus Products Cooperative, Plymouth, Fla., hooks up Schrader Air Products simply and economically to a gravity conveyor. Full 55-gal. barrels on feed sections roll down to stop bars and are selected in correct order and ratio for dumping. "The Schrader system performs well," says C. Byron Smith, plant manager. "We're handling 200 to 300 barrels a day on this selective conveyor, and could handle more."



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OCCUPATIONAL HEALTH



Abstracts of current literature on Occupational Hygiene, Medicine, and Nursing

By J. T. SIEDLECKI
Industrial Hygienist, NSC

Chemist and Industrial Hygiene

"The Chemist and Industrial Hygiene." By Elmer P. Wheeler. *Industrial and Engineering Chemistry*. March 1960. Pp. 67A-72A.

THE AUTHOR elaborates on the definition of industrial hygiene as given in the October 1959 issue of the *American Industrial Hygiene Association Journal*, particularly as to the role of the chemist in the field of industrial hygiene.

The application of industrial hygiene principles would be impossible without direct participation by chemists.

The chemist's training and experience enables him to understand the language of the toxicologist and industrial hygienist, since a mutual language is involved in discussing differences in toxicity and hazards associated with compounds in the same class of chemicals.

Analytical chemistry techniques are used to measure the atmospheric concentration of gases, vapors, fumes, and dust. Chemistry plays an important role even in the earliest phases of toxicological research to determine the effect of a substance on animal or man.

Although direct or indirect reading devices for measuring atmospheric concentrations of chemicals in air are becoming available, these do not give a truly representative sample of an eight-hour daily working exposure. Unless continuous sampling and recording equipment are available to him, the industrial hygienist must use sampling methods requiring analytical chemistry techniques for quantitative and qualitative evaluation of the working environment to determine whether an exposure exists or engineering control measures are effective.

Once the chemist accepts the aims and objectives of industrial hygiene and becomes indoctrinated in the potential toxic effects of chemicals, he is prepared to recognize similar physiological effects from chemicals of similar structure.

Breaking Factory Heat Waves

"Factory Heat Waves Can Be Broken." By B. R. Small. *American Industrial Hygiene Association Journal*. Volume 21, No. 1. February 1960. Pp. 32-38.

NEW STANDARDS in building structure and changes in plant processes have caused a re-evaluation and revision of heat relief measures for operating personnel.

Considerable thought should be given in planning and cost estimates before selecting either ventilative cooling, radiant heat shielding or evaporative cooling. In ventilative cooling, outside air is mechanically supplied and distributed in measured quantities in ways to give maximum comfort to workers.

Large volumes of air taken from above the room by ventilators must be controllable to provide effective cooling benefits. These controls can include air distribution diffusers that are pull-chain adjusted from the floor.

Shielding from radiant heat from hot operations involving molten metal, hot metal surfaces, kilns, and engines is obtained by using material that maintains a highly reflective surface without deterioration from atmospheric conditions. Aluminum sheet or foil are excellent shielding material.

Where there is a problem of high building ambient or air temperature together with radiant heat, cooling with washed air is the solution. This evaporative cooling requires good air distribution, control, proper air

volumes, and grills placed close to the men. A good ventilation program can go a long way in improving health, spirit, and productivity.

Arsenic Toxicology And Biochemistry

"Arsenic Toxicology and Biochemistry." By B. L. Vallee, M.D.; D. D. Ulmer, M.D.; and W.E.C. Wacker, M.D. *A.M.A. Archives of Industrial Health*, Vol. 21. February 1960. Pp. 132-151.

THIS ARTICLE is an excellent review of the toxicology and biochemistry of arsenic and its compounds. There are 182 literature references listed at the end of the article.

The major industrial risk from arsenic is the generation of arsine. Instances of arsine poisoning have occurred among metallurgical workers from the action of water or acid on arsenic-bearing metals. Arsine poisoning has also been reported among workers employed in the cyanide extraction of gold, in the handling of aluminum dross during the refining of tin or lead, manufacture of arsenical weed killers and wood preservatives, processing of zinc, and in cleaning large tanks used to store and transport acid.

The author stresses that simple precautions could have avoided all reported fatalities. Prevention appears to lie largely in awareness of the problem.

Arsenic and arsenical compounds are skin and mucous membrane irritants. This dermatitis can be controlled in much the same way as any other industrial irritant.

Although it has been concluded that arsenic may cause skin cancer, it rarely does so in industry. Accidental ingestion of insecticides and rodenticides containing arsenic continues to be a frequent cause of mortality. The author reports that

—To page 80

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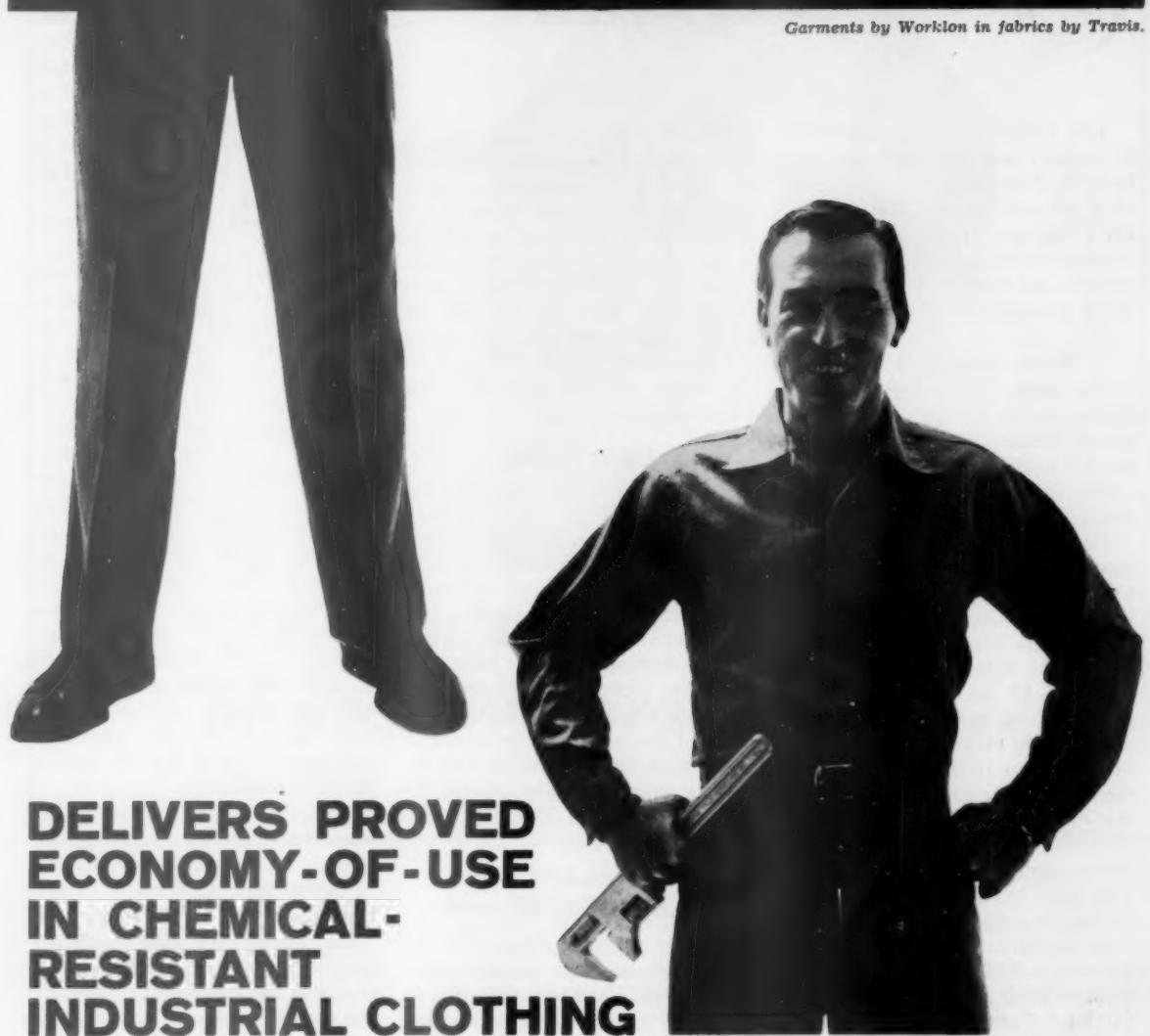
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THE ACCIDENT BAROMETER



Prepared by the Statistics Division,
National Safety Council

THE TREND of accidental deaths in January was upward, compared to 1959. The fatality toll was 8,000, or 4 per cent above 7,700 in January a year ago. There were increases in motor-vehicle, public non-motor-vehicle, and home and a decrease in work accident fatalities.

Motor-Vehicle Deaths

The motor-vehicle death total was approximately 2,870, or 4 per cent above January 1959. Mileage data are not available at this time to calculate a rate for January on this basis.

For January, 20 states had fewer deaths than in 1959, three had the same number (including Hawaii), and 27 had more deaths. States with the greatest improvement over last year were: Alaska, -100 per cent; Idaho, -53 per cent; and North Dakota, -44 per cent.

Reporting cities with populations of more than 10,000 showed an increase of 9 per cent over 1959. Of the 703 cities reporting for January, 113 had decreases, 468 had no change, and 122 had increases. Cities with more than 200,000 population having the largest reduction in deaths from January 1959 were: Wichita, Kans., -100 per cent; Grand Rapids, Mich., -100 per cent; and Oakland, Calif., -78 per cent.

Work Accidents

There were about 1,150 deaths from work accidents in January, or 4 per cent fewer than a year ago.

The January frequency rate per 1,000,000 man-hours in 13 sectional accident prevention contests conducted by the National Safety Council was 3.92, a reduction of 12 per cent from 4.43 in 1959.

Public Deaths

The January death total for public non-motor-vehicle accidents was

1,150, or 5 per cent more than in 1959. Most of the increase occurred in deaths from transportation accidents, but deaths from firearms accidents also were more numerous. Fewer deaths resulted from fires, drownings, and falls. There were increases in deaths of persons 15 to 24 and 25 to 44 years old, about the same number for children 5 to 14 years of age, and decreases in the remaining age groups.

Home Deaths

The home accident death toll for January was 3,100, or 200 more than in January a year ago. There were sizable increases in deaths from poisonings and firearms accidents; small increases in fire deaths, mechanical suffocation, and falls; a large reduction in deaths from poison gases. Decreases were recorded in deaths of children 5 to 14 years old and persons 15 to 24 years of age. Other age groups showed increases with the largest change recorded for persons 25 to 44.

Old Hazards Still Lead, Says Labor Department

Despite dramatic dangers of the Space Age, old-fashioned slips, falls, and materials handling still rank as the chief causes of work injuries, Secretary of Labor James P. Mitchell commented in issuing a new publication, *Control of the Physical Environment*.

Part of the U. S. Labor Department's *Safety in Industry* bulletin series, the new brochure briefly details procedures by which management may safeguard physical environment—"the foundation on which every successful safety program is built."

Before improvements are undertaken, the bulletin recommends a complete plant survey to check such

factors as condition of building and facilities, plant layout and access, flow and handling of materials, control of hazardous materials and processes, and related environmental exposures including lighting, noise, ventilation, heat and humidity, and vibration.

"Familiarity with the plant may mean that hazards go unrecognized," the pamphlet states, and recommends an experienced "outsider" on the survey team. Buildings should be structurally safe for present or future use: those designed for light manufacturing, for example, may not be strong enough for heavy storage.

In plant layout, placement of machinery and equipment should be planned to avoid backtracking and crisscrossing and to allow space for operators, materials, necessary moving about, and scrap removal.

Aisles and passageways should be designed as "an important highway system" with main traffic roads and feeder lanes. Inadequate lighting, according to some authorities, causes from 15 to 25 per cent of all industrial injuries and should be improved to meet the American Standard Practice for Industrial Lighting. Color should reflect light on walls and ceiling and elsewhere identify hazards and equipment, such as red for fire protection equipment, yellow for caution, or purple for radiation.

Attention is called to recognized standards of machine guarding, care of tools, and preventive maintenance of equipment. Detection of hazards through studies of the flow of materials through the shop or the survey of processes is illustrated by charts in the brochure.

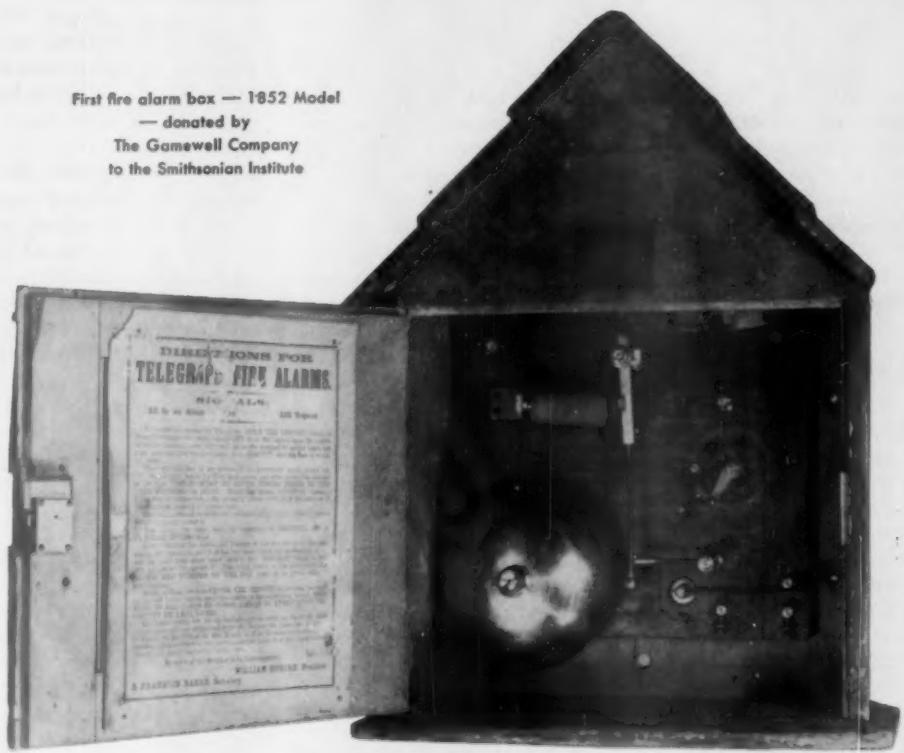
Control measures for common material hazards arising from corrosiveness, toxicity, and flammability are cited. Methods of eliminating hazards associated with processing include substitution of a safer method, enclosure of toxic processes, automatic feeding of machines, and mechanical instead of manual handling.

Sample copies of the 13-page brochure (Bulletin 211) may be obtained free, as long as the supply lasts, from the Bureau of Labor Standards, U. S. Department of Labor, Washington 25, D. C.

First fire alarm box — 1852 Model

— donated by

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A century of positive protection . . .

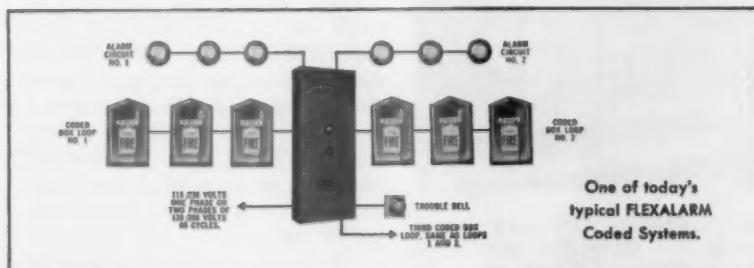
More than a hundred years ago, the wooden, hand-cranked Gamewell Fire Alarm box shown above was the most dependable fire alarm device of its day. And, during the years since then, Gamewell has consistently pioneered in the manufacture of emergency signaling systems . . . with thousands of municipal and industrial systems in daily service.

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can depend on when you specify today's modern, highly automated Gamewell industrial FLEXALARM system like that shown below. Such systems are pre-engineered to meet the precise needs of any plant. FLEXALARM systems are available with unlimited variations. They provide automatic fire detection devices, sensing fire in its incipient stages . . . with optional direct and automatic connections to municipal

and other central fire stations. Connected to sprinkler systems, FLEXALARM systems automatically transmit an alarm on water-flow preventing loss from fire and water damage. These systems provide complete coverage.

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One of today's
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FIRST...WHEN SECONDS COUNT

Radar Can Be Tamed

—From page 23

electric arc to form free sulphur and free fluorine, with six atoms of fluorine to each atom of sulphur.

The fluorine part of this compound is highly toxic gas and must be carefully controlled. If necessary to open such a wave guide, care should be taken to properly vent all gas from the guide before any work is done. Flushing the wave guide with air or nitrogen under a hood would be a simple method of removing all poisonous gas.

During normal operation vacuum or gas-filled tubes produce X-rays. Penetrating power and strength of X-rays is dependent on voltage across the tube and power passed through the tube. Tubes that operate at less than 10,000 volts produce "soft" X-rays, as they have little penetrating power and will not penetrate the glass of the tube.

Tubes operating in excess of 10,000 volts will produce X-rays that may pass through the walls of the tube, and with even higher voltages could be dangerous to persons working in the immediate vicinity. The harmful effects of X-rays can easily be controlled by shielding the tube with heavy materials, such as a lead sheet or a steel plate.

The problem of measuring X-radiation occasionally will become difficult, as the X-rays will be shielded by electrical effects on the measuring instrument. However, if film badges, rings, pocket ion chambers, or dosimeters are used, accurate measurements may be made. Standard regulations for use of X-ray equipment should serve as guides to personal exposure allowed.*

Some switching tubes used in radar sets are artificially treated with small amounts of radioactive material to continuously ionize the atmosphere in the tube. This radioactive material is customarily an artificially produced isotope applied to the tube as salt in a liquid base.

The liquid is evaporated, leaving the salt attached to the internal surface of the tube. Quantities

placed in any tube are of the order of a microcurie, only a few times stronger than normal cosmic ray background. Cumulative effect of many of the smaller types of these tubes stored in one place can be troublesome.

Periodic use of a beta-gamma survey meter is advisable to assure maintenance of concentrations below the allowable maximums.* The radioactivity level realized should be used to limit the quantity of tubes stored in any one location.

Another problem may be the inhalation or ingestion exposure, if the tubes are broken. Special care should be taken during handling to prevent breakage. Tubes should never be stored loose or permitted to remain where they are likely to drop or be struck.

The artificial radioactive isotope used most frequently does not tend to be absorbed by the body. Even if taken in, it is rapidly eliminated. In spite of this rapid removal of material from the body, it is advisable to avoid absorbing any more than absolutely necessary, in the same way we avoid foods that tend to upset our systems.

A few types of tubes are doped with a radium compound, and with these there is a genuine inhalation

*N.B.S. Handbook 42, *Safe Handling of Radioactive Isotopes*.



Waveguide joints at a point through which radar energy may leak if the unit is not properly aligned.

or ingestion hazard. The radium compound is not eliminated rapidly by the body and may build up to dangerous levels during repeated exposures. Proper handling techniques are also adequate to minimize this hazard.

The hazard of greatest interest seems to be that of electromagnetic radiations. This may be because it's a type of radiation, and radiation—"a mysterious force"—has had much adverse publicity.

Radar microwave radiation has now become one of those things that people fear probably through lack of knowledge. The fear produced by radar is much more than that produced by tranquilizers or cigarettes, and yet we know these are not fully safe when taken in large doses. However, these hazards seem to cause little impact on people.

The effect on the body of radio frequency energy is that produced by heating the body. When placed in a radar beam, the body will be warmed, as will any other conductive object. If the temperature rise exceeds the capacity of the body to dissipate the energy applied, the condition aggravates itself, and it is possible that damage could occur.

In the event of low-power radar sets, such as those used in radar speed measuring devices or weather-mapping radar on aircraft, the amount of power available is too low to cause difficulty to anyone.

A possible exception is made in the case of the eyes, if a direct observation is made of the output of the unit. The eyes and other parts of the body not provided with many blood vessels tend to rise in temperature more rapidly than the general body and may become affected much quicker than other parts of the body.

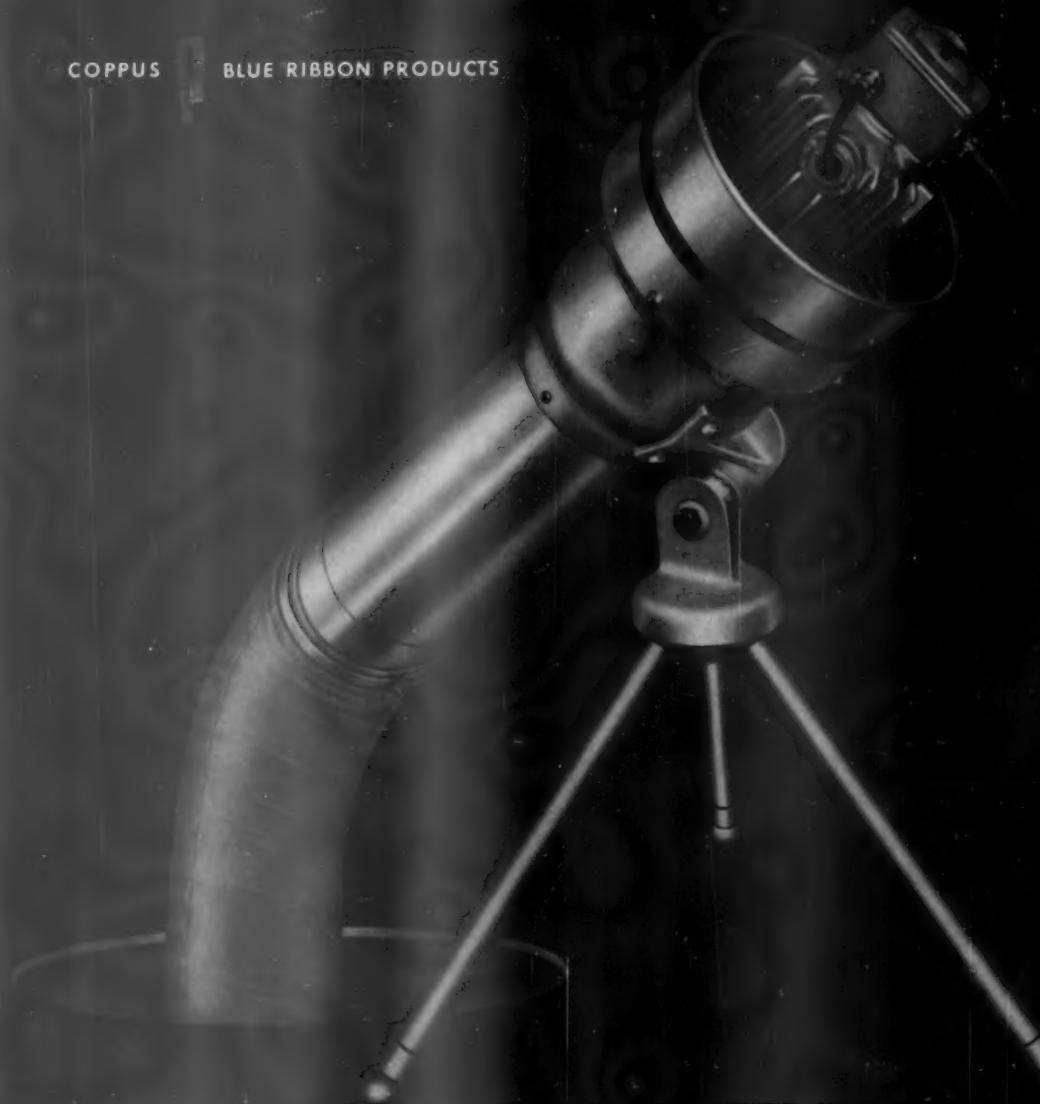
Depth of penetration of radar energy is determined, in part, by the frequency of the energy. The lower frequencies produce more diffused heating and are not so likely to produce localized high temperatures. High frequencies do not penetrate so deeply, because their energy is dissipated in or below the skin. Frequencies in the range of 3000 megacycles are believed to produce maximum body heat and may be the most dangerous ray.

—To page 70

*N.B.S. Handbook 41, *Medical X-ray Protection Up to Two Million Volts*. N.B.S. Handbook 59, *Permissible Dose from External Sources of Ionizing Radiation*.

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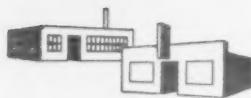
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COPPUS
BLOWERS



SMALL BUSINESS and ASSOCIATIONS

By RAYMOND C. ELLIS, JR., and JOHN T. CURRY

Small Business Program Staff, National Safety Council

C. Luepke Tells MCAA About "Hidden Costs"

"Uninsured costs of accidents are the hidden costs that plague management," Clem Luepke, NSC Construction Section representative, told the Mason Contractors Association of America at the organization's re-



MCAA Safety Committee members confer before NSC-MCAA safety booth at Mason Contractors' 10th Annual Convention in Cincinnati. L to r: A. G. Beyer, Monte Smallen, Peter S. Baler, Edward Heimbrock.

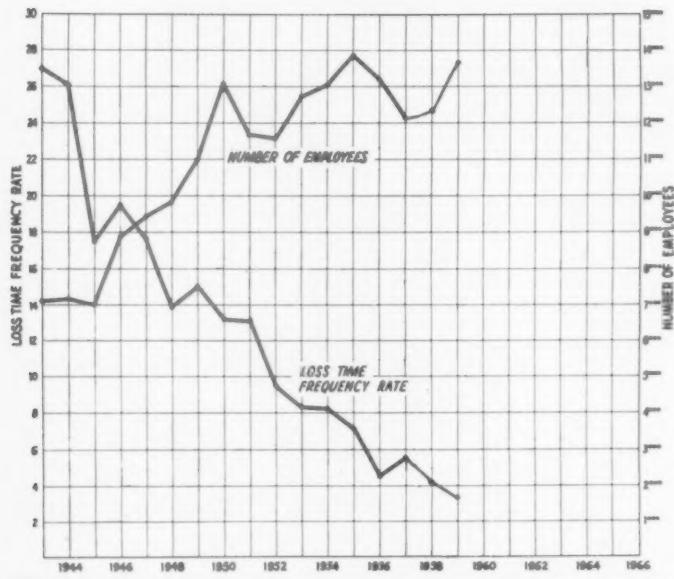
cent 10th Annual Convention in Cincinnati.

Included in these costs are "repairs to damaged equipment; cost of replacing damaged material; cost of removing and re-erecting displaced areas of finished walls; cost in wages of idle men discussing an accident and of assisting the injured if an injury occurs," Luepke said.

Considering temporary and permanent disabilities incurred in professional and amateur construction activities, plus the economic drain on the country's finances, the MCAA and its executive secretary, George Miller, invited Luepke to speak at the convention.

After meeting with the industry's safety committee, chaired by A. G. Beyer, Luepke spoke to the general assembly of 300 members.

GYPSUM INDUSTRY SAFETY RECORD



Gypsum Industry Sets Record

A recent issue of the association safety bulletin indicates a disabling injury rate of 3.47 has been established by the 61 gypsum industry plants entered in the 1959 Gypsum Association Safety Contest. This rate establishes a new record low and is a 16 per cent reduction from last year's all-time low of 4.13.

Twenty-four plants achieved zero-frequency-rate goals, and 50 per

cent (36 plants) achieved the industry goal of 3.0.

Proving that perfect records are the result of work and not luck, 16 plants repeated their perfect record achievement in the 1958 contest. Of this number, 7 are repeats.

This reduction in disabling injuries to a low of 95 accidents is even more of an accomplishment in the light of the industry's 11 per cent increase in total man-hours.

A survey conducted among MCAA members a year ago estimated a total of \$1,180,000 in compensation premiums were paid by MCAA members. An anticipated \$708,000 would be paid out for compensation and medical attention. According to Luepke, "No doubt, these 1958 figures were slightly worse than those incurred in 1957."

981 Awards In AGC Safety Program

The Associated General Contractors of America on March 24 presented a total of 981 merit awards and commendation certificates to AGC contractors and chapters for setting top safety records in 1959.

—To page 143

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T-37

AMPCO® SAFETY TOOLS

Around the Compass

—From page 19

full-time executive secretary and director of field activities throughout the state.

Memorial Safety Library Established

The Safety Division, Syracuse Chamber of Commerce, and Central New York Chapter, ASSE, are jointly establishing a safety library in the new Syracuse Central-Technical High School. This will be a living memorial to the late Mr. Martin Skahen, safety engineer of the Easy Laundry Appliances Division. In 1955 a committee was appointed to study possibility of establishing a permanent safety memorial in his name.

Safety Talk Guide

The Caddo Bossier Safety Council, Inc., Shreveport, La., has prepared a booklet designed to aid persons in making a safety speech to a civic club or any other organizational type of meeting. The 40 pages of material contains statistical and accident fact data which could be used in such a presentation.

Suggestions are made concerning preparation. Specific areas of safety such as home, traffic, and public are covered to give the speech-maker background information and ideas.

Safety Message Promoted

The Metropolitan New Orleans Safety Council recently sent a letter to various editors in their service area, enclosing a safety message and cartoon. The letter pointed out the need for continuing the battle for accident prevention, and encouraged the editor to use the safety message in his publication.



"Is it my fault I can't get a license?"



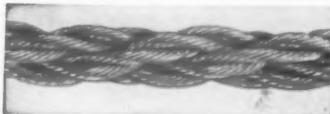
New steels are born at Armco

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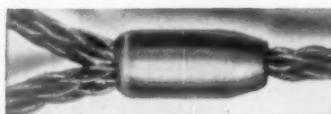
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Tuffy® Tips
—on safe use of
Slings and Hoist Lines

Safety Council
Cites Factors
in Lifting
Injuries



The National Safety Council reports nearly a fourth of all compensation cases are the result of unsafe handling methods or conditions. The following are listed as factors contributing to handling injuries:

(a) Handling loads that are too heavy; (b) lifting or lowering with the back muscles instead of the leg muscles; (c) handling load with an insecure grip and failing to watch where hands are placed; (d) handling without sufficient help or failing to use mechanical equipment; (e) handling before getting a firm footing; (f) lifting or lowering with a jerking, twisting movement of the body, or when the body is in an awkward position."

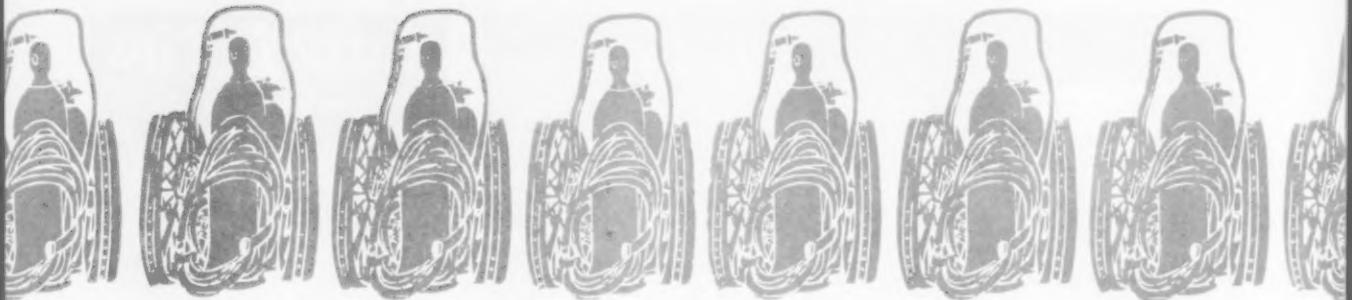
Maintenance Tips for Hoisting Equipment

- (1) Be sure crane and hoist controls are in proper working order. Don't use equipment that hasn't been tested recently.
- (2) Inspect hitching equipment before it is used. Re-check after use.
- (3) Remove hitching equipment not in use from hooks, hoists and loads. Don't allow it to remain loose.
- (4) Store slings systematically when they're not in use. Don't let them lie around helter-skelter. They may be damaged between lifts.

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Little Known Facts About INJURY OCCURRENCE

Seasonal and business patterns in accident rates

By GERARD O. GRIFFIN

Director of Safety, Dravo Corporation,
Pittsburgh, Pa.

EXPERIENCED safety directors know that when employment and the mercury rise, so do work accidents. Many studies have been made of season changes and business conditions on accident rates in manufacturing plants.

The United States Bureau of Labor Statistics survey of manufacturing companies showed a fairly consistent pattern in the injury frequency rates for 1954 through 1958. In general, the rate rose between June and September, with July and August being the worst months. January and December normally were the months with the lowest incidence of injuries.

The reasons appear fairly obvious. In the warm summer months workers move more sluggishly and tend to be more careless. At the same time the pace on outdoor work is stepped up to take advantage of good weather.

Our experience at Dravo does not quite follow the general pattern, but tends to late third quarter or early fourth quarter peaks. We consider this as due to the length of time since the induction of the workers on construction work and possibly the rush to get as much as pos-

sible done before the onset of bad weather.

Increases and decreases in employment also seem to have a definite correlation with the rise and fall in injury rates. A California study for the period 1945 through 1958 showed injuries at their lowest level in 1949 and 1954, both years in which business activity slackened noticeably. These same phenomena are brought out by United States Bureau of Labor Statistics studies and the paper entitled "Injury-Frequency Rates in Manufacturing 1949-50," a graphic analysis by Mr. Ewan Clague before the 1951 President's Conference.

A repetition of this cycle is apparently currently in the making. Some time about Labor Day in 1958 the injury rates for manufacturing, which are the injury rates, broke a three-year decline—which was almost a seven-year decline—with a rise. The first and second quarters of 1958 were at a record low rate and the fourth quarter reverted to a decline, so the year as a whole became the seventh in a fairly regular downward trend.

But the upturn in the third quarter was the turning point and a forewarning of things to come. In 1959 the worm really turned. Every month was higher than the corresponding month in 1958. In fact, the third quarter manufacturing injury rate was the highest since 1953. As this third quarter 1959 report states:

"The gradual downward trend in injury frequency rates in manufacturing apparently had run its course by mid-1958."

Except for the usual seasonal decline in November and December of 1958, the monthly rates moved progressively higher, to reach a peak of 14.4 in August of 1959, the highest since August, 1953. September showed about the usual seasonal decline to 12.9; this rate was still the highest September rate since 1953.

July and August increases were more than seasonal, indicating continuation of the upward trend in injury rates. However, curtailed employment in many low-rate industries, as a result of the steel strike, may have contributed to the high level of rates during the third quarter. These rates are quite sensitive, and we don't yet know how major industrial upheavals, such as the steel strike, will affect the manufacturing injury rate.

In the so-called nonmanufacturing industries, results were mixed in 1958, and sufficiently mixed so that these, plus the manufacturing industries rate, made the over-all results rather spotty. However 1959 is up 8 per cent and quoting from the Bureau of Labor Statistics preliminary 1959 Report:—"The upswing appears to reflect increased industrial activity, since the injury rate often rises when

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A panel presentation at The President's Conference on Occupational Safety, Washington, D. C., March 2, 1960.



To keep in touch with his railroaders in spite of varied hours and locations, William J. O'Connor, general manager of the Colorado & Wyoming, tapes monthly safety talks which reach virtually every man in the company.

Tape Adds Wings to Words

With scattered train crews and 24-hour operation, safety communication is difficult. But taped messages aren't handicapped by time and distance

Engineers, switchmen, clerks, and firemen of night crews gather around a recorder during the extra 10 minutes added to their lunch break to hear the boss's informal, straight-to-the-point discussion of safe work practices. Reaching out-of-the-way crews via tape was the idea of O. A. McAllister (left), assistant yardmaster.

PROMOTING SAFETY on-the-job is an activity most busy executives agree is important, yet few have time to take a personal hand in it.

How to carry management messages "live" to each of 350 employees and still find time to conduct his regular business was the problem confronting William J. O'Connor, vice-president and general manager of The Colorado and Wyoming Railway, when he found it impossible to conduct an effective safety campaign merely by posting safety notices.

The C & W Railway, a subsidiary of The Colorado Fuel and Iron Corporation, is a public railroad, Class I carrier. Communication with crews is difficult as they are widely scattered and many work night shifts. Nevertheless, company officials felt it essential to reach the crews with periodic safety talks, as statistics prove that concentrated emphasis on safety markedly reduces accidents.

"We would have a representative for the enginemen and switchmen attend our weekly safety meetings,"



O'Connor said, "and we would sometimes attempt a little safety conversation with members of crews when we ran into them, but we knew that wasn't enough."

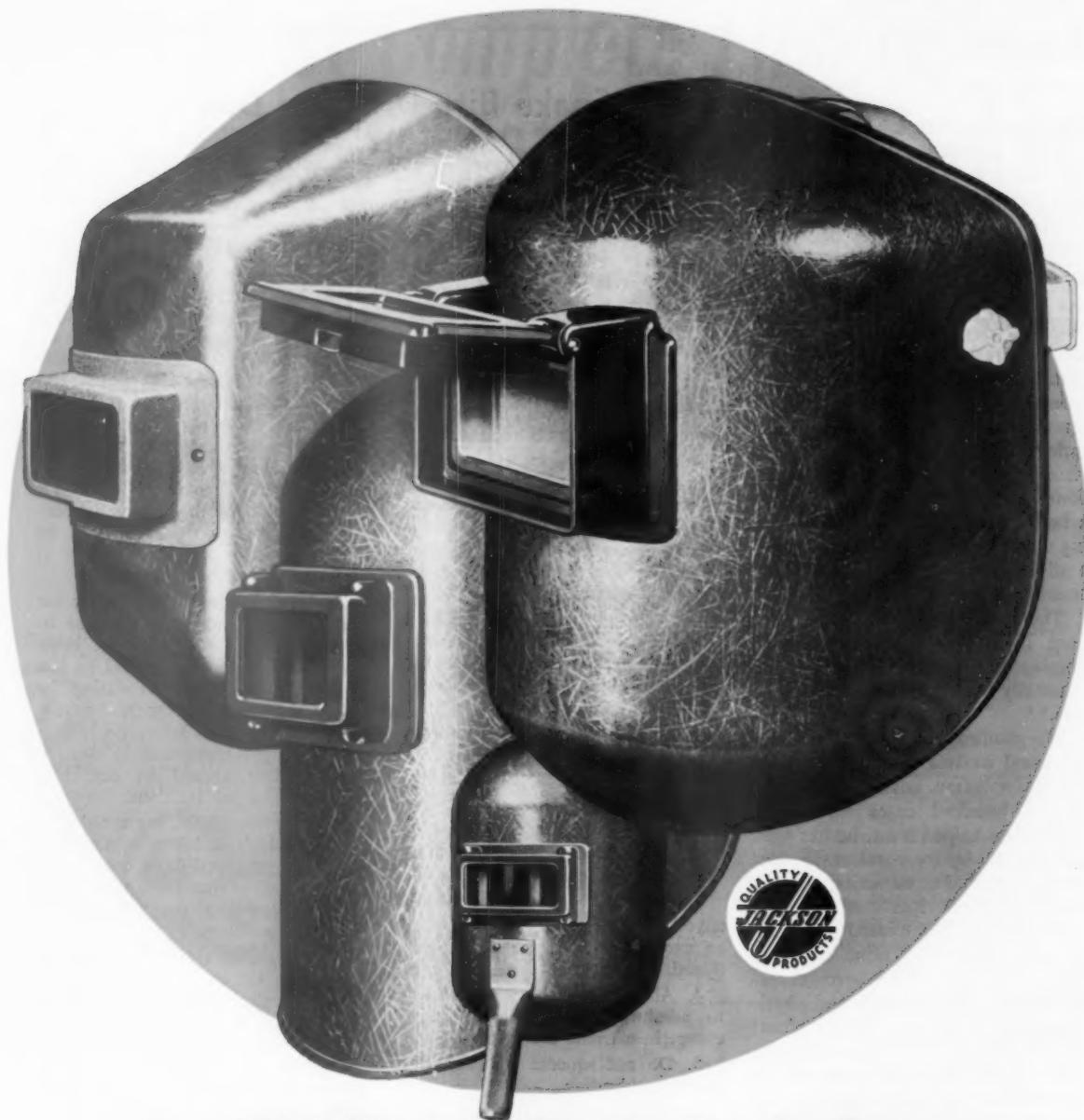
O'Connor credited the regular meetings for appreciably reducing accidents in the shops, rip track, and track departments. "But this was not true in yard transportation," he said, "where the same ratio of accidents continued."

In an attempt to improve the situation, the job of conducting safety sessions with yard crews was added to the other duties of the yardmasters.

The plan was a failure. "Too many crews ate in separate places," O'Connor said, "little interest was displayed and the yardmaster could not make a good safety talk."

Then an assistant yardmaster, O. A. McAllister, came up with the solution to the problem: tape-recorded talks by the boss, which would instill interest—especially to the night crews—and could be played to one or several crews wherever the lunch hour was held.

Applying the suggestion was a simple procedure as it required a minimum of equipment. The com-



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WARREN • MICHIGAN

Snake Bite

—From page 27

man⁶ has recorded serious tissue destruction following the bite of even the youngest of pit vipers. It has even been reported that a cobra has inflicted a fatal wound before fully emerging from the egg.

Composition of venom. Generally speaking, snake venom is composed of complex proteins, which act as enzymes. Hyaluronidase is found in most venoms and is responsible for the quick spread of venom along the lymphatics. Interestingly enough, the venom is rarely disseminated by the blood. The predominant venom of the pit vipers is a hemotoxin which causes a breaking down of the red blood cells and a disturbance of the clotting mechanism.

The coral snake secretes a venom in which a neurotoxin predominates. Death from such a bite is usually the result of bulbar paralysis.^{6,7}

We challenge the deadliness of the coral snake's bite in this country, as so often advanced. Of the several hundred cases the senior author has helped treat, he has seen nine caused by the coral snake. Not one of these was as serious as the least of the pit viper cases. Parrish writes that he has treated five cases of coral snake bite, none of which was dangerous. Extensive correspondence with hospitals and physicians has resulted in only one report of a death caused by a coral snake, and we feel that serum sickness or overexertion may have played an important role in the cause of this death.

Symptoms. A venomous snake bite wound first appears as a small white wheal surrounding each puncture. The wheal usually progresses to red, and later may turn blue, green, or purple. Depending on the nature of the venom, edema is present in varying degrees at the site of the infection, and the patient complains almost immediately of an intense burning pain at the site of the bite.

Shock may be present in various expressions: for example, as a thready, weak pulse; cold, clammy perspiration; and faintness. Even

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Snake Bite Do's and Don'ts

What to Do When Bitten

1. Kill the snake, if it can be done in 10 minutes; its body should accompany the victim to the physician.

2. Apply a constrictor 3 inches above the wrist or ankle, as the case may be, loose enough not to retard the venous return, and another constrictor above the elbow or knee. If the extremity turns white or blue, the constrictor is too tight. Release both constrictors at intervals of 20 minutes, leaving them off for 3 minutes.

3. Wrap cracked ice (if available) and apply it to the wound. Do not allow ice to come in direct contact with the flesh.

4. Drink strong coffee or Coca Cola, if it does not nauseate. A teaspoon of spirits of ammonia is better, if available.

5. If alone, walk slowly toward help. If with companions, be carried to the vehicle and proceed to a physician as fast as possible.

6. Be as calm as the situation will permit.

What NOT to Do

1. Do not get hysterical. Remember, few snake bites result in death.

2. Avoid alcoholic beverages.

3. Don't attempt surgery or allow anyone other than a physician to do so, except as in the emergencies mentioned.

4. Allow no one but a physician to administer antivenomous serum, except in extreme emergency.

5. Do not squeeze the wound to stimulate bleeding.

What the Physician Should Do

1. Immediately upon patient's arrival, remove all tight strictures and apply loose ones.

2. Sedate patient, if necessary.

3. As soon as possible, blood should be obtained, counted, and typed. A urinalysis should be ordered, and the patient tested for sensitivity to antivenomous serum.

4. Measure the circumference of the limb at a point 3 in. above the bite. Record of the spread of edema should be kept hourly.

5. Under local anesthesia, connect the fang punctures with a $\frac{1}{2}$ -in. incision as deep as the considered depth of the wound. Thus, the venom

may be reached. Due to the curvature of the fangs and the directional attack of the snake, chances are great that the pocket will not be drained.

6. In proportion to the seriousness of the poisoning, supportive incisions should be made in areas of excessive edema. Such measures will minimize the danger of sloughing. Linear incisions stimulate drainage much better than X-type incisions, and good drainage is paramount. Regarding incision and suction, under-treatment is far more dangerous than over-treatment. Incisions should be 1 in. apart and $\frac{1}{8}$ to $\frac{1}{4}$ in. deep. The length of the incision depends on the size of the suction cup, and the depth should be great enough for adequate drainage of the lymphatics.

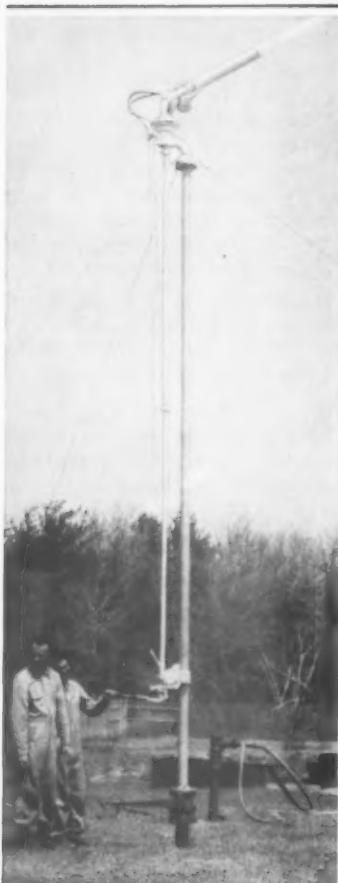
7. Apply suction cups steadily for the first two hours. They should be removed for 15 minutes each hour. Warm saline dressings should be laid lightly over each incision during the rest period. Suction should be continued for at least 8 hours. As long as the swelling advances at $\frac{1}{4}$ in. per hour, suction should be continued with bracelets of incisions.

8. After the edema has receded to the physician's satisfaction, the limb should be wrapped in a towel containing cracked ice for an indefinite period, depending on the patient's systemic condition.

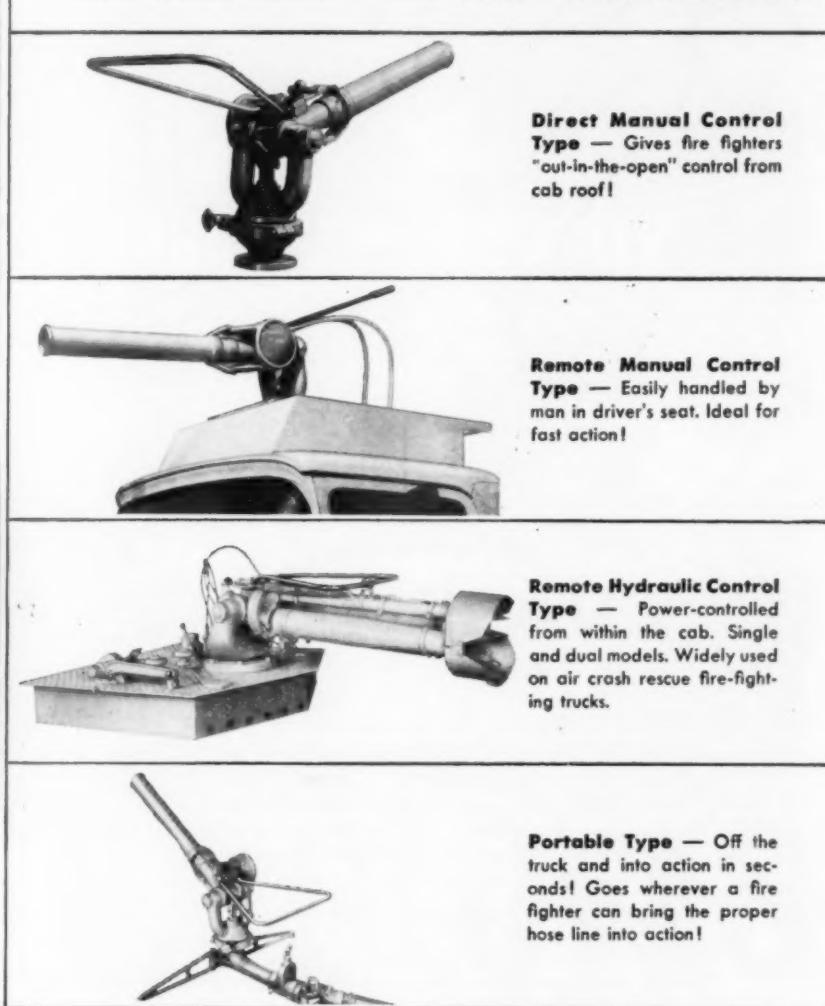
9. The patient should be tested for sensitivity to antivenomous serum. Even though skin and eye tests are negative, there is always the chance of serum sickness. Antivenomous sera should be prescribed only in severe poisonings. Reactions are sometimes more serious than the venom. If envenomation is serious enough to demand its use, it should be administered in relatively vast quantities—60 to 120 cc. While it has an important place in medical science, we are fearful of its side effects if used promiscuously. Antihistaminics in adequate doses should always be given concomitantly.

10. ACTH, cortisone, antihistaminics, and streptomycin and other antibiotics have been used with questionable results.¹⁰ Trypsin and curare are now in the experimental stage. We have found calcium gluconate administered intravenously to be of great help in severe cases. Tetanus and gas gangrene antitoxin as well as antibiotics should be administered.

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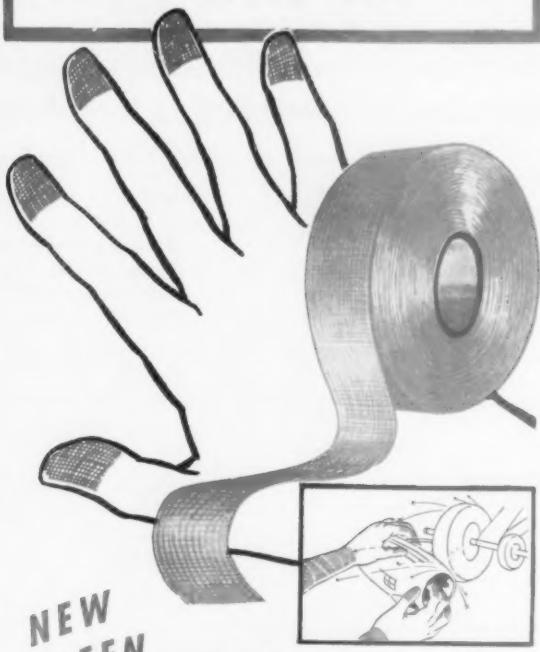
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—From page 66

loss of consciousness may result. Because the venom is spread by the lymphatic system, the regional lymph nodes usually become involved and enlarged. On occasion, the patient may have difficulty in breathing, which in some cases may actually be asthmatic in nature.

In severe cases, nausea and vomiting are common, and there is frequently conspicuous muscular twitching. It might be stated parenthetically that it is not uncommon to observe many of these symptoms in nervous individuals who have been bitten by a nonvenomous snake. A diagnosis is easily made, however, in the presence of definite local signs at the bite, shock, or evidence of involvement of the vascular system, such as local edema or some degree of conjunctivitis.

Treatment. At best, snake bite treatment is heroic, and it would be interesting to learn the number of persons who have undergone this treatment after having been bitten by a nonvenomous snake. During the past nine years, the senior author has observed several hundred cases of snake bite. Among these were many false alarms, and in a number of instances of bites by copperheads, moccasins, pygmy or ground rattlesnakes, and the Texas coral snake, no treatment was needed except an injection of tetanus antitoxin or toxoid and sedation because a detailed history and physical examination revealed no indications of poisoning.⁸

We are impressed with the damage caused by well-meaning individuals whose attempts at first aid result in brutally deep incisions and tourniquets applied too tightly and for too long a time. These measures result in damage which often exceeds that of the bite.

Contrary to public opinion, snake bite is not necessarily such a serious thing. Few deaths occur in spite of "woods surgery" as practiced today or even with methods used 40 years ago. These included applying a poultice of half a freshly killed chicken, searing the wound with a hot iron, burning it with gunpowder, or drinking a cocktail consisting of a mixture of lard,

—To page 70



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vinegar, quinine, boiled tobacco juice, and whiskey.

We believe that the sacrifice of surgical cleanliness exposes the patient to far greater danger than the time involved in transporting him to medical facilities, if a physician or hospital can be reached in an hour and if the wound is on an extremity.

Suction by mouth is dangerous, not to the operator but to the patient. It is common knowledge that the human bite frequently results in severe infection. This danger is magnified by the edematous, hemorrhagic wound following snake bite. One should not hesitate to use mouth suction, however, in the event of poisoning by a large rattlesnake or water moccasin, or of any venomous snake bite on the face, neck, or trunk. In such desperate cases, no time should be lost. Lacking other aids, a sharp piece of tin or broken glass may be sterilized by flame for use as a cutting instrument. A pliant vine used as a constrictor might save a life.

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Tape Adds Wings to Words

—From page 19

pany purchased a Revere Model T-100 portable tape recorder and a supply of "Scotch" brand magnetic tape No. 190—a recording tape with thin plastic backing which provides as much playing time as 1½ reels of standard tape.

Recorded in November 1957, the first message proved so effective that to date a total of 23 taped talks have been heard by virtually every employee in the company. Replayed more than 25 times during the month it is in circulation, a typical tape is listened to by groups varying in size from five to thirty employees when they gather throughout the day and night at the shops, rip track, track, yardmasters' offices, and crews' stations. The tape also is played in various departments of C F & I's Pueblo Plant.

O'Connor and A. A. Blazina, C & W's middle division superintendent, record the tapes which often carry miscellaneous messages concerning morale, teamwork, or holiday greetings in addition to safety.

"Our main purpose is to make the men feel they are important cogs in the business and must be alert in order to produce for the company, themselves, and their families by remaining uninjured," says O'Connor.

Phrased in typical railroad vernacular, the taped talks are informal and off-the-record yet clearly inform the men what is expected from them. An example is the following excerpt from a talk in which O'Connor discussed an exceptionally well-handled train trip he had taken:

"I noticed a crew in Denver that failed to add a coach to the Zephyr when they made her up. The yardmaster on the loud speaker in a moderate voice told them of their mistake. The crew foreman stopped his engine without a washout sign, then the crew proceeded at a safe speed to pick up the coach by an easy joint, kept in sight of the engine crew, threw the necessary switches without haste and jointed the coach to the train without a jar. The couplings were made by the inspector, the air test made and the train turned over to the road conductor ready to highball, the whole

operation performed in eight minutes.

"That, my friends, was a piece of real railroading. Every man knew his job, stayed on the job and performed his job safely and sure. It didn't take any ballyhooing, whistling, cussing, running, stumbling, going between cars, waving wildly, or running in front of moving engines or cars. Best of all they didn't spill even a cup of coffee in the diner.

"Just proves the railroad to run safely and well only needs sense and knowledge, not heroes, nor slackers, just an ordinary good smart American who has his head 'cut in' to protect himself, his fellow employees and the company's property and its future business."

Radar Can Be Tamed

—From page 56

The only area at which radar energy should be normally available should be at the antenna. Once again, the hazard from low-power radar units is probably nil, but that from units producing powers of the order of tens of thousands of watts or more can be hazardous.

Studies indicate that harmful body heating cannot possibly result, if the incident energy level does not exceed 10 milliwatts per square centimeter of the body, and does not exceed 1 milliwatt per square centimeter at the eyes, kidney, and liver.

This amount of power may be measured by one of several commercial power measuring units currently on the market or may be calculated from system parameter. As with the measurement of any radio frequency radiation, care must be taken in interpreting readings to be sure neither overly conservative nor overly restrictive interpretations are made. Specific instructions on the use of such devices may be obtained from manufacturers.

Hazards present in radar sets range from those involved in lifting materials through electrical shock and burn hazards to microwave radiation hazards. However, as with any other piece of equipment, safe operation is possible by taking necessary precautions.



Sounding Board

News of Interest in the Field of Noise Control

Automatic Audiometers Simplify Effective Hearing Conservation Programs



The new Rudmose ARJ-4 Automatic Audiometer now being distributed by Industrial Acoustics Company, Inc.

"STEEL CLAD" TELEPHONE BOOTHS KEEP NOISE OUT - CONVERSATION IN



Wall Model "NOISHIELD" Telephone Booth installed in a machine shop.

IAC "NOISHIELD" telephone booths are engineered for high acoustic efficiency to provide ease of conversation in noisy locations or privacy of conversation where desired.

Featuring rugged steel-clad construction, attractive finishes and low cost, these booths are ideal for factories, public buildings, terminals, schools, laboratories, restaurants, stores and for all noisy locations. IAC "NOISHIELD" booths are also available in floor models. Circle 31.

Audiometers which are completely automatic and which allow the subject, after a short instruction period, to control his own hearing test are making it possible for more and more companies to institute effective Hearing Conservation Programs. With most states recognizing hearing loss as a definite compensable item in workmen's compensation cases, the presence of a Hearing Conservation Program has become a must where the working environment can lead to loss of hearing among employees.

Audiometer Just One Factor

The automatic audiometer which simplifies the actual hearing test is just one factor in an overall Hearing Conservation Program. To be completely effective, the program must take into account all factors which tend to affect hearing loss.

In the case of a noisy environment, attention must be paid to reducing the noise level. This can be done by either isolating noisy equipment through the use of complete or partial machinery enclosures or by protecting personnel with "Quiet" Rooms which shield workers from damaging noise.

Examination Rooms Important

The first step in any Hearing Conservation Program, the pre-employment hearing test, must be completely reliable in order to determine the hearing ability of the employee at the time of hiring. To insure a reliable test, the use of an Audiometric Examination Room is recommended.

An IAC Audiometric Examination Room, when used in conjunction with the Rudmose Automatic Audiometer, assures a proper testing environment for obtaining accurate and valid audiograms. A complete hearing test takes only six minutes and the subject conducts his own pure tone test. Circle 30.



Subject conducts his own hearing test seated within an IAC Audiometric Examination Room.



A machinery enclosure helps control noise levels by isolating noisy equipment.

Other literature available

- "Noise-Lock" Doors — Circle 32.
- "Quiet" Rooms for Supervisory Personnel — Circle 33.
- Control Rooms — Circle 34.
- Silencers for Air Handling Systems — Circle 35.

- High Intensity Noise Chambers — Circle 36.
- "MINI-SIZED" Test Chambers — Circle 37.
- Mufflers & Industrial Silencers — Circle 38.
- Sound Isolation Rooms — Circle 38A.



Industrial Dept. NS-5
**INDUSTRIAL ACOUSTICS
COMPANY, INC.**

341 Jackson Avenue
New York 54, N.Y.
CYPRESS 2-0180

National Safety News, May, 1960

Please send data on: 30 31 32 33 34 35 36 37 38 38A

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

Circle Item No. 27—Reader Service Card

A Fire-Safe Kitchen

Cleanliness, backed by an automatic carbon dioxide extinguishing system, keeps fire hazards under control

WITH FIRES in eating establishments causing an annual loss of more than \$30 million, New York City's Hanover Bank has taken steps to minimize the chance of fire putting its feeding operation out of business.

Although not primarily in the restaurant business, the bank operates a kitchen at its main branch which serves over 2,000 meals a day to employees. The kitchen, dining room, and adjacent lounges are as attractive and complete as possible.

According to F. M. Creighton, assistant treasurer of Hanover's Building and Maintenance Department, a major consideration when planning the kitchen involved safeguarding it against fire.

Equipment comprises 5-lb. CO₂ portable extinguishers and a CO₂ system to stand guard over kitchen range hoods and exhaust ducts and deep fat friers.

The chance of fat in friers breaking into flame must always be considered, and between cleanings

grease can accumulate in exhaust ducts difficult to get to.

Hanover's zeal for cleanliness has avoided the problem of grease fires. However, if one should strike, rate-of-temperature-rise fire detectors would automatically trip four 75-lb. CO₂ cylinders.

Under its own pressure gas floods from its containers and passes through piping to nozzles flanged into the hoods and ducts. A sufficient volume of fire-killing gas is introduced to inert them. The fire is smothered in seconds.

Simultaneously, CO₂ also is discharged from nozzles aimed directly into the deep fat friers, covering them with a cloud of gas.

Built into the CO₂ piping is a pressure-operated switch, actuated by passage of gas. When tripped, it causes exhaust duct fans to be turned off. Finally, a wall-mounted pull box installed in the center of the kitchen can be used to actuate the system manually. CO₂ is an efficient fire-smothering agent, is a nonconductor of electricity and, being a gas,



Carbon dioxide extinguisher can also be operated manually by this pull box.

eventually dissipates into the atmosphere, leaving no mess to be cleaned up. Finally, it cannot contaminate or affect the taste of food.

Howard L. Post, food consultant, incorporated plans for the system in his initial kitchen design. As a result, it was installed as a basic part of the kitchen and is largely concealed.



Cleanliness reduces chances of fire in this kitchen maintained by New York's Hanover Bank to handle employee feeding. But if fire should break out, carbon dioxide would snuff it out promptly. Nozzles above the deep fat friers, operating automatically, and portable carbon dioxide extinguishers are ready for emergency. (Walter Kidde & Co.)

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NEW ACCOLOY KUPLEX SLING CHAINS

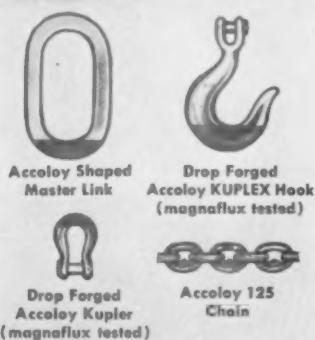
• Imagine...you can now get **one-day delivery service** on ACCOLOY KUPLEX Chain Slings like you see here from our nearby Authorized

KUPLEX distributor! This really remarkable development in speedy sling service is made possible by the new KUPLEX coast-to-coast system of localized service to meet your sling chain needs. No more waiting around for shipments from the factory...no more returning damaged slings to the factory for repairs. Our KUPLEX distributor is equipped to offer you both of these valuable services, and he's as near to you as your telephone.

KUPLEX is a modern sling chain that has been tried and proved through thousands of applications. Its streamlined form greatly reduces the chance of snagging on other objects. KUPLEX Sling Chains are assembled from genuine ACCOLOY KUPLEX component parts which have

been factory proof-tested at twice their specified load limits. Each part is designed and manufactured specifically for use with all other parts of the complete KUPLEX sling assembly. These matched components are made to ACCO *Registered Specifications* from heat treated ACCOLOY steel, and are engineered to be as strong as the chain itself. Hooks and Kuplers are magnaflux-tested. In addition, you are assured of complete safety—with genuine component parts—by a **CERTIFICATE OF TEST** issued by ACCO and signed by the distributor with each complete sling purchase.

• • •
Write our York, Pa., office for the name of the Authorized Kuplex Sling Distributor nearest to you.



• A nearby Authorized ACCOLOY KUPLEX Sling Distributor will supply promptly from stock the exact sling chains you need. With the 4 components shown above he can make up single, double, 3-leg and 4-leg slings in six different chain sizes ($\frac{1}{4}$ " through $\frac{7}{8}$ ").

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*Indicates Warehouse Stocks



USE THIS PAGE TO TEST SAFETY HATS!



...see what a world of difference details make in safety hats! Tear out the safety hat ads from this magazine, or lay your own hat or cap beside this photo. Now, compare!

1. Does any other safety hat provide a double echelon of specially developed fabric suspension straps? This is one important reason why Bullard POWER-BLOC® suspensions absorb greater amounts of shock.

2. Check the number of points where the suspension is attached to the hat shell. POWER-BLOC attaches at six points to better disperse overhead impacts.

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This combination of vital details is the reason POWER-BLOC suspensions, in test after test, deliver an extra margin of protection.

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BULLARD COMPANY
CUPERTINO, CALIFORNIA



U.S. PAT. OFF.
MARCH 1960, E. G. BULLARD COMPANY

OFF-THE-JOB—ON-THE-JOB



A JOBSETTER named H. Jackson at the Ternstedt Division of General Motors tops all previous shoe-that-saved-toes stories with this one: His right foot somehow got caught under a rotary mower at home. No damage except to the leather covering the steel toe cap of the shoe. At work a material handling truck ran over his left foot, but again no injury to Mr. Jackson's toes.

Waste CO₂ Isn't Wasted

—From page 35

and hotter the fuel burns, the more CO₂ is available to the system. From 12 to 13 per cent CO₂ is most desirable in the stack gases.

To extract flue gas from the stack, 16-in. pipes are fitted in the uptakes, port and starboard, and connected to a common header to the scrubber inlet.

Scrubber: The scrubber consists of an elliptical shell tank in four horizontal sections. Flue gas enters the scrubber at boiler temperature and is cooled to about 90 F. It is also cleaned to remove impurities.

Each upper section of the scrubber is separated from the next lower section by channelled trays. Flue gas enters the bottom section through a serrated bell mouth submerged below the vessel's water level. It passes through a bath of

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**to solve bridge fitting problems with
 MULTI-FIT BRIDGE**

In 1957, Fendall pioneered the amazingly versatile Multi-Fit Bridge. Available in acetate and metal frames, this patented one bridge size automatically fits 9 out of 10. Self-adapting to wearer's face, no involved try-ons, no bridge adjusting. Fit practically every worker with one bridge size. Reduces inventory. Proved most comfortable... thousands in daily use.



**to solve temple-fitting problems with
 ADJUSTABLE TEMPLE JOINTS**

Another Fendall engineering first, available only on Fendall Safety Glasses. Front end of temple is designed so it can be adjusted for perfect temple fitting on all faces. For a narrow face, bend it in; for a wide face, bend it out; permits temple adjustment to provide the right amount of tension to prevent slippage.



**to solve loose temple screw problems with
 LOK-TITE HINGE PINS**

This exclusive Fendall feature eliminates the trouble and annoyance caused by loose and lost temple screws. Fendall's Lok-Tite Hinge Pins snap in easily, lock in position, cannot fall out, yet are simple to remove.

These are just a few of the features that make Fendall Safety Glasses your best buy.



FENDALL PRODUCTS



FEND ALL HAZARDS

FENDALL COMPANY

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10 in. of water in the lower chamber and 2 in. of water in the second and third chambers.

A high and low weir on the trays insures that the channeled outlets are always immersed in water and that gas passes through the water on its way to the blower suction at the top of the tank. The fourth section of the scrubber is a "dry" chamber fitted with baffle plates to extract moisture from the CO₂ before it enters the rotary gas blower.

The system is protected against delivering hot gas to cargo tanks by an automatic valve in the inert flue gas blower suction. This valve is opened by the pressure of the cooling water to the scrubber and closed automatically by any failure in the water system.

Pump: A 10 x 26.5 XB heavy duty rotary positive gas pump motivates the entire flue gas system. This unit has a 3000 cfm capacity with a pressure of 2 psig. It is equipped with wide face, herringbone, spur gears, double thrust bearings, closed impellers, and renewable impeller tips. It also has force feed lubrication.

The blower has two figure-eight impellers rotating in opposite directions. As each lobe of an impeller passes the blower inlet, it traps a quantity of gas equal to exactly one-fourth the displacement of the blower. The entrapment occurs four times per revolution, moving the captured gas around the case to the blower outlet.

Timing gears accurately position the impellers in relation to each other, maintaining a vital, minute clearance.

This particular design of blower was selected for the job because of its capabilities in handling gases containing a high degree of impurities and abrasive solids. Normal out-leakage through seals in an ordinary blower would permit these impurities and abrasives to enter and damage bearings and gears.

Renewable impeller tips allow for replacement of worn tips resulting in restoration of much of the original efficiency without the expense of replacing entire impeller assemblies.

The gas pump is connected directly with an 800 rpm, four-speed electric motor.

Deck: The *Eastern Sun* has 10

cargo tanks. They extend from port to starboard, and each is divided into three separate compartments . . . a port and starboard wing tank and a main tank. These form a tank group.

CO_2 is delivered to the deck through a main header running the length of the deck. It is fed from the main header into each compartment through smaller pipes running at right angles to the main header.

CO_2 is introduced into the main header through a gate valve. It passes through another gate valve and a check valve into the smaller pipes before entering the compartments.

The main header and smaller pipes are protected by pressure-vacuum valves. Each of the small pipe lines is connected to a flame arrester, which acts like a miner's lamp, and a vent high above the deck on masts and kingposts. The ship has six such vents.

Testing and Recording: So important is the CO_2 system to the safety of the ship, crew, and cargo that several testing devices are used in the engine room and on deck, to periodically check its effectiveness. Testing cabinets, explosibility meters, and CO_2 recorders are generally used. The operation of the flue gas system is carefully recorded and logged as part of the ship's voyage report.

Alarm System: A series of automatic alarms indicate failure of the cooling apparatus in the scrubber, failure of the fusible link in the blower suction, or excess pressures or vacuums on the main header of each group of manifolds. Should any part of the flue gas system fail to function properly, the entire system shuts off automatically.

Latest addition to the company's fleet is the 50,000-ton supertanker *Pennsylvania Sun*. She is 745 ft. long and has a 102-ft. beam. Her cargo tanks will hold 17,500,000 gals. or about 417,000 bls. She is also equipped with an inert flue gas fire control system.

Machinery required for the operation of the system will be composed of the same basic units, including a turbine-driven 5000 cfm series 600 XB gas pump, and will work in the same fashion.



Instant bankruptcy! In a flash, fire can put you out of business. Protect dangerous flammable liquid hazards (like the coater shown above) with a *fully-automatic* Kidde carbon dioxide extinguishing system. Approved by U.L. and F.M., Kidde systems smother fire in seconds, leave no mess, turn off power and sound an alarm . . . get you back in production fast! Kidde's 35 years' experience can help you protect *any* hazard . . . write today and find out how.

Industrial and Marine Division

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Safety Champions of 1959

Winners of First-Place Plaques in NSC Sectional Contests

A FREQUENCY RATE of 7.41 disabling injuries per million man-hours worked was reported for 1959 by 5,443 entrants in 19 industrial groups in which contests were held.

The combined frequency rates for winners of National Safety Council plaques was 1.76—approximately 24 per cent of the average rate for all contestants. For 1958 the frequency rate for 5,224 entrants was 7.17. Among winners of plaques the combined frequency rate was 1.60.

The companies listed below will receive first-place awards according to the rules of the contest in their own industry.

In the Bakery, Food, and Rubber contests, all companies with perfect records receive duplicate first-place plaques. In all the other contests first-place plaques are awarded only to the unit operating the largest number of man-hours in cases where several contestants have perfect records.

In addition to the contests listed here, competitions are also conducted by the Metals Section; the Meat-Packing, Tanning, and Leather Products Section; and for steel fabricators on a fiscal year basis.

Complete lists of winners, including those in second and third place, and companies receiving certificates of merit for perfect records, appear in the contest bulletins which have been sent to all participating companies and plants. Each bulletin also contains a brief analysis of the industry's experience.

AERONAUTICAL INDUSTRIES

COMPLETE AIRCRAFT MFG.

Group A—Ryan Aeronautical Co., Main Plant, San Diego, Calif.

Group B—Douglas Aircraft Co., Charlotte, N. C., Div.

AIRCRAFT AND ROCKET ENGINE MFG.
Guided Missile Div., The Firestone Tire & Rubber Co.

ELECTRONIC GUIDANCE SYSTEM

Ryan Aeronautical Co., Electronics Div., San Diego.

RESEARCH AND DEVELOPMENT

NASA, Flight Research Center, Edwards, Calif.

BAKERY INDUSTRY

Sponsored jointly by the American Bakers Association and the National Safety Council.

Group A—Ward Baking Co., Youngstown, Ohio.

Group B—American Bakeries Co., Knoxville, Tenn., Plant.

Continental Baking Co., Gary, Ind.
San Joaquin Bakeries, Inc., Fresno, Calif.

Our Own Bakeries, Inc., Marquette, Mich.

Mrs. Baird's Bakery, Cake Plant.
Interstate Bakeries Corp., Plant No. 30, Santa Barbara, Calif.

Group C—Colonial Baking Co., El Dorado, Ark.

Stroehmann Bros. Co., Altoona, Pa.
Rainbo Baking Co., Joliet, Ill.

San Joaquin Bakeries, Inc., Visalia, Calif.

Rainbo Bakers, Modesto, Calif.

Capital Bakers, Inc., Plant No. 5, Williamsport, Pa.

Capital Bakers, Inc., Plant No. 2, Harrisburg, Pa.

Colonial Baking Co., Asheville, N. C.

Interstate Bakeries Corp., Plant 31, El Centro, Calif.

Peter Pan Bakers of Greenville.

Rainbo Bakers, Inc., Pueblo, Colo.

Group D—Southern Bakeries Co., Charlottesville, Va.

Capital Bakers, Allentown, Pa.

Capital Bakers, Wilmington, Del.

Purity Baking Co., Pana, Ill.

Capital Bakers, Hanover, Pa.
Capital Bakers, Carlisle, Pa.

BARGE AND TOWING VESSELS INDUSTRY

Group A—John I. Hay Co., Motor Vessel Crews, Chicago.

Group B—Socony Mobil Oil Co., Western River, New York City.

CHEMICAL

DIVISION I

Group A—E. I. du Pont de Nemours & Co., Chattanooga Plant.

Group B—E. I. du Pont de Nemours & Co., Benger Laboratory.

Group C—E. I. du Pont de Nemours & Co., East Chicago Orchem Plant.

DIVISION II

Group A—Thiopol Chemical Corp., Longhorn Div., Marshall, Tex.

Group B—Merck & Co., Stonewall Plant.

Group C—Atlas Powder Co., Senter Plant, Houghton, Mich.

DIVISION III

Group A—Pittsburgh Plate Glass Co., Forbes Finishes Div., Cleveland, Ohio.

Group B—General Mills, Inc., Chemol Plant, Kankakee, Ill.

Group C—Janex Co., Ltd, Leaside Plant.

COMMERCIAL VEHICLE

COMMON AND CONTRACT CARRIERS DIV.

Group A—The Mason and Dixon Lines, Inc., Kingsport, Tenn.

Group B—The Mason and Dixon Tank Lines, Inc., Kingsport, Tenn.

AUTOMOBILE TRANSPORTERS

Sponsored jointly by National Automobile Transport Assn. and National Safety Council.

F. J. Boutell Driveaway Co., Flint, Mich.

—To page 159

PYRENE-C-O-TWO

offers 10 Dry Chemical Extinguishers for complete Class B and C fire protection

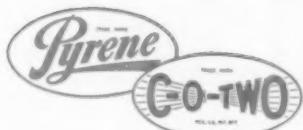
Your local Pyrene-C-O-Two distributor now offers 10 dry chemical extinguisher models, 2½ to 150 lbs., to give your plant complete protection against all flammable liquid, gas and electrical fires. Every dry chemical unit is charged with patented "Formula H," an exclusive, moisture-repellent, heat-resistant, non-caking powder that flows freely under all conditions. Every model is approved by Underwriters' Laboratories and Factory Mutual.

If you prefer stored pressure types, you can select from 2½, 5, 10, 20 and 30 lb. models. These units expel powder in a thick, blanket-like stream when the lever of the squeeze-grip nozzle is pressed . . . visual gauge shows operating condition. Or you can choose from 4, 20 and 30 lb. cartridge-operated models. After these extinguishers are inverted and the cartridge-piercing mechanism bumped, the dry chemical stream can be controlled by the squeeze-type discharge nozzle. Completing the line are 75 and 150 lb. wheeled portables which can easily be maneuvered indoors or out.



*...every model charged with
exclusive, patented "Formula H"*

Your Pyrene-C-O-Two distributor will help you make your dry chemical extinguisher selections . . . or he can also show you a complete line of liquid agent or carbon dioxide extinguishers. Look for his local listing in your Yellow Pages under "Fire Protection Equipment."



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who works in a bank."*



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**ONE BRADLEY COLUMN
PROVIDES FIVE SHOWERS**

For women, stall-separating partitions and curtains are supplied.

A quick shower, a change to street clothes, and any employee regardless of his type of work or surrounding conditions can leave refreshed and trim. And according to dermatologist James W. Jordan of Buffalo, as reported in *Newsweek* "Shower before leaving work" is an important preventive measure.

For all details write for new Bulletin H-1322 to

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MIT to Offer Noise Reduction Course

The Massachusetts Institute of Technology announces that it will again offer a special summer program on noise reduction, August 22 through September 2.

This two-week program will be under the direction of Dr. Leo L. Beranek, Department of Electrical Engineering, assisted by other M.I.T. faculty members and industrial engineers. The program will be taught on a case history and problem solving basis with a minimum of formal lectures. Foundation material will be derived from a new text, *Noise Reduction*, to be supplied to all enrollees.

The program is directed toward the engineer who has been assigned a noise problem for solution. The first week's topics include behavior of sound waves, decibels, selection and use of instrumentation and sound in enclosures.

Occupational Health

—From page 50

in 1955 pesticides of all types were responsible for more than 900 deaths in the United States. The commonest of these pesticidal agents were arsenicals.

Aliphatic Acids And Esters

"The Aliphatic Acids and Their Esters—Toxicity and Potential Dangers." By W. F. von Oettingen, M.D., Ph.D. *American Medical Association Archives of Industrial Health*. Vol. 20, December 1959, pp. 517-531; Vol. 21, January 1960, pp. 28-63; Vol. 21, February 1960, pp. 100-113.

IN THESE THREE ARTICLES the author gives an excellent review of the saturated monobasic aliphatic acids and their esters. In the first article he discusses the chemistry toxicology of formic acid and its esters. In the second article he continues the discussion with acetic acid and its esters. In the last article he discusses the aliphatic acids with three to 18 carbons and their esters.

These include propionic acid, butyric acid, isobutyric acid, valeric acid, isovaleric acid, methyl-ethyl-acetic and trimethyl-acetic acid, caproic acid, isocaproic acid, di-

ethylacetic acid, heptanoic acid, caprylic acid, pelargonic acid, capric acid, undecanoic acid, lauric acid, tridecyllic acid, myristic acid, palmitic acid, and stearic acid.

Throughout the three articles the author follows the pattern of discussing the chemistry, determination in air and in biological materials, absorption, fate and excretion, toxicity for laboratory animals, toxicity for man, prophylactic measures, and treatment of poisoning. The author also gives a comparison of the physical and chemical properties of the esters and their toxicity.

At the end of each article he lists an extensive bibliography. Dr. von Oettingen is the author of the book entitled "Poisoning (A Guide to Clinical Diagnosis and Treatment)" published by the W. B. Saunders Company, Philadelphia, 1958.

Raynaud's Phenomenon Of Occupational Origin

"Survey of Current Status of Raynaud's Phenomenon of Occupational Origin." By L. J. Pecora, Ph.D.; M. Udel, M.D.; and R. P. Christman, B.S. *American Industrial Hygiene Association Journal*, Vol 21. February 1960. Pp. 80-83.

RAYNAUD'S PHENOMENON is a hand and forearm disability due to vibration of work tools. Disorders resulting from the use of these tools involve blood vessels, nerves, muscles, and joints. The author reports that speeds of hand tools have been gradually increased to 60,000 rpm, with recent indications that speeds up to 100,000 rpm will be used.

The author has made a survey of the literature to determine the number of workers affected and the number using small hand-held vibratory tools. He has found there are only isolated reports of small numbers of cases of this phenomenon. No cases have been reported in American literature in the last 10 years.

However, there have been some cases of this disease in Europe. No compensation claims for this disease have been paid in this country. The author concludes: "All the information thus gathered indicates that Raynaud's phenomenon of occupational origin may not be completely eradicated but that it may have become an uncommon occupational disease approaching extinction in this country."



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THE SAFETY LIBRARY



Reviews of books, pamphlets and periodical articles of interest to safety men

By LOIS ZEARING, Librarian, NSC

BOOKS AND PAMPHLETS

Chemicals

The Merck Index: Of Chemicals and Drugs. 7th ed 1960. 1641pp. Merck & Co., Inc., Rahway, N. J. Price \$11.

Construction

Regulations for Construction and Use of Scaffolds. Effective March 1, 1960. 40pp. Florida Industrial Commission, Safety Department, Tallahassee, Fla. (SCAF-1960.) Single copies free.

Employment

Hazardous Employment Prohibited for Minors Under State Child-Labor Laws. 105pp. U. S. Department of Labor, Bureau of Labor Standards, Washington 25, D. C. (Bulletin 205.)

Fire Protection

F.E.M.A. Handbook of Safety Codes: Inspecting—Protecting—Maintaining—Recharging, Portable Fire Extinguishers, Fixed Carbon Dioxide Systems, Standpipe and Inside Hose Systems and Fixed Foam Systems. 1959. 24pp. Fire Equipment Manufacturers' Association, One Gateway Center, Pittsburgh 22, Pa. Price \$1. (Based on Standards of the National Fire Protection Association.)

Guarding

Regulations for Guarding of Mechanical Power Transmission Apparatus. Effective March 1, 1960. 27pp. Florida Industrial Commission, Safety Department, Tallahassee, Fla. (MPTA-1960.) Single copies free.

Health

Control of the Physical Environment. U. S. Department of Labor, Bureau of Labor Standards. 1960. 13pp. Superintendent of Documents, Washington 25, D. C. (Safety in Industry—Organization and Administration No. 1—Bulletin 211.) Price 15¢.

Mines

Geologic Factors Related to Block Caving at San Manuel Copper Mine, Pinal County, Ariz. 2. Progress Re-

port, April 1956—March 1958. 1960. 43 pp. Publications Distribution Section, U. S. Bureau of Mines, 4800 Forbes St., Pittsburgh 13, Pa. (Report of Investigations 5561.)

Radiation

Special Sources of Information on Isotopes. January 1, 1960. 54pp. Office of Isotopes Development, U. S. Atomic Energy Commission, Washington 25, D. C. (TIO-4563.)

MAGAZINE ARTICLES

Accidents

"The Value of Accident Investigation." Clyde F. Schlueter. *Supervision.* March 1960. Pp. 12, 25.

Aeronautics

"Crash Fire Fighting for Structural Firemen. Part 1—Aircraft Construction Features and Hazards." Gilbert J. Haas. *Fire Engineering.* February 1960. Pp. 128-131.

"Packaged Maintenance." *Pacific Factory.* February 1960. Pp. 20-21.

"What Are the Odds on Airport Crash Protection?" H. M. Gray and William L. Collier, Jr. *Business/Commercial Aviation.* March 1960. Pp. 41-43.

Chemical Industry

"The Chemist and Industrial Hygiene." Elmer P. Wheeler. *Industrial and Engineering Chemistry.* March 1960. Pp. 67A-68A, 70A.

Clothing

"Protective Clothing Program at the Savannah River Plant." H. L. Butler and R. W. Van Wyck. *American Industrial Hygiene Association Journal.* February 1960. Pp. 55-58.

Construction

"Failures: Too Often, Too Similar." *Engineering News-Record.* March 3, 1960. Pp. 21-22.

"'Job Clean-Up' Makes Pipeline Building Safe and Profitable." Asa Jackson. *The Constructor.* February 1960. Pp. 61-62.

"Man-Made Landslides Are Safer." *Engineering News-Record.* March 10, 1960. P. 47.

Fatigue

"The Three R's of Combating Fatigue." Frank M. Kleiler. *Supervision.* February 1960. Pp. 16-17, 23.

Fire Protection

"Ammonium Nitrate—Behavior in Fires." Chester I. Babcock. *Quarterly of the National Fire Protection Association.* January 1960. Pp. 217-221.

"Get the Most in Fire Safety." Alan Stevens. *The Plant.* February 1960. Pp. 28-31.

"Organizing Plant Fire Protection." J. Ward Bush. *Quarterly of the National Fire Protection Association.* January 1960. Pp. 266-273.

"What Causes Electrical Fires?" *Quarterly of the National Fire Protection Association.* January 1960. Pp. 274-277.

"What Would a Fire Do to Your Plant?" Jack Stroube. *Modern Lithography.* February 1960. Pp. 34-36, 121.

Health

"Evaluation of the Cardiac Patient for Work Capacity." Joseph G. Benton. *Journal of the American Medical Association.* February 20, 1960. Pp. 90/790-93/793.

"Improving Medical Services Through Labor-Management Relations, Legislation, Training and Education." George Brown. *Industrial Medicine and Surgery.* February 1960. Pp. 90-92.

"Masked Symptoms in Safety and Health." H. Ivan Sippy. *Industrial Medicine and Surgery.* March 1960. Pp. 127-129.

"The Role of the Industrial Medical Department." F. A. Van Atta. *Industrial Medicine and Surgery.* February 1960. Pp. 61-63.

"The Role of the Industrial Medical Department." Thomas F. Nolan. *Industrial Medicine and Surgery.* February 1960. Pp. 57-60.

"What Is Industrial Medicine?" Leo J. Wade. *Industrial Medicine and Surgery.* February 1960. Pp. 54-56.

Health Hazards

"The Aliphatic Acids and Their Esters: Toxicity and Potential Dangers." W. F. von Oettingen. *AMA Archives of Industrial Health.* January 1960. Pp. 40/28-77/65. February 1960. Pp. 24/100-37/113.

"A Clinical and Environmental —To page 157

**I DID EVERYTHING
I COULD FOR HIM BUT
...FOR HEAVEN'S SAKE
WHY WAS HE WEARING
REGULAR SHOES ON THE JOB
?-?-?**



ONE WORKER DOWN AND ... 219,999 TO GO?

Reliable insurance sources state that according to latest available figures 220,000 industrial foot injuries occurred in a single year.

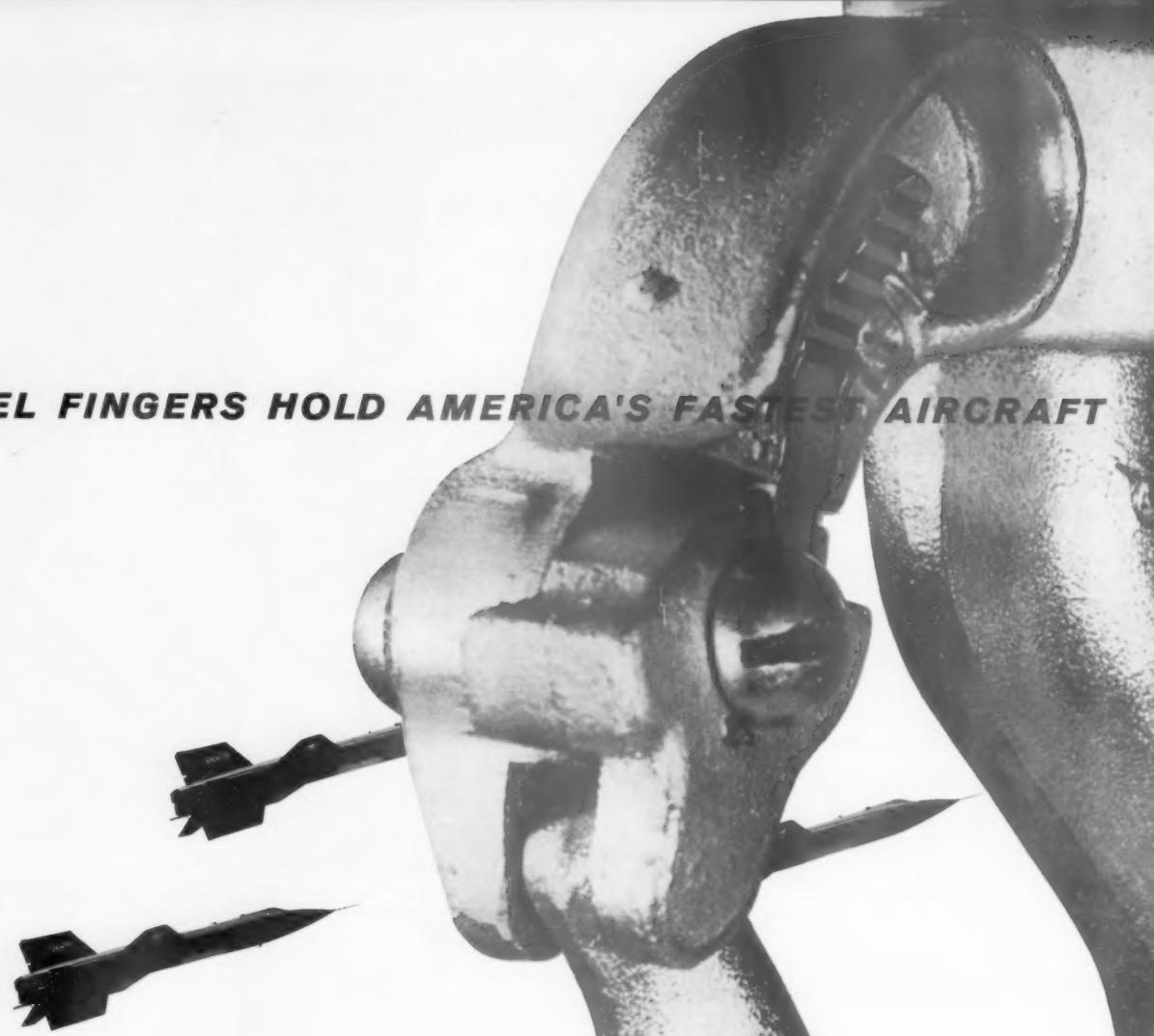
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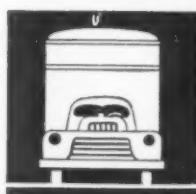
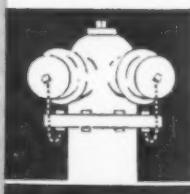
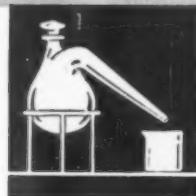


**TECHNICAL
FEATURE
SECTION**

**The Journal
OF THE
AMERICAN
SOCIETY
OF
SAFETY
ENGINEERS**

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MAY, 1960

AMERICAN SOCIETY OF SAFETY ENGINEERS

Organized 1911—Chartered 1915

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Authors, Committee Consider Scope of Safety Profession

■ IN THE FIVE YEARS since the *Journal* was launched, a number of its authors have discussed the basic nature of accident prevention work and have asked for a careful reappraisal of the definition and appropriateness of the term, "safety engineering," in light of the requirements of the profession in the modern industrial world.

In this issue Author C. Russell DeReamer (page 21) expresses his viewpoint on the Society's need for a firm decision on the question of "safety engineer" versus "safety specialist"—and the reevaluation of Society objectives which might result from such a decision—in the light of industry's rapid technological progress and the new areas of knowledge which this progress demands of the safety profession.

At the recent President's Conference on Occupational Safety, which carried the theme, "The Challenge of Safety in a Changing World," this matter of scientific advancement received much attention. Still another aspect affecting future industrial safety work is "The Changing Nature of the Work Force," topic of a conference address by Ewan Clague, commissioner of labor statistics, which has been adapted for publication as a *Journal* article (page 18).

These papers by the Messrs. DeReamer and Clague appear at an especially appropriate time since their subject matter covers a part of the material presently being considered by the Society's Special Committee on Long Range Planning which, under the chairmanship of Past President Henry B. Duffus, is preparing recommendations to spell out the scope of the safety profession and the goals of the Society.

—Editor

OUR PRESIDENT SPEAKS ON SAFETY

LEADERSHIP IN SAFETY by the American Society of Safety Engineers was illustrated once again at the recent President's Conference on Occupational Safety. As a Society, we can be justifiably proud of the part our members played in making this year's conference one of the most effective to date.

A review of the roster of the Planning Committee for the conference reveals that a majority of its members belong to our Society. Our managing director was chairman of the Program Committee and a substantial number of the speakers and consultants in both the plenary sessions and the workshops are on our membership rolls. This is solid evidence of the important professional contribution our Society members are making in the safety field.

The theme of the conference was an exciting one: "The Challenge of Safety in a Changing World." It set the pattern for the forward thinking and positive action which must be taken by professional safety people in the years to come. Highlighted by the dramatic changes which are occurring in our scientific and industrial community and the marked increase in the number of young people who will be coming into our work force in the next decade, the conference pointed up the need for education—not only education of our working force but education of our safety people in the changing nature of their responsibilities.

The challenge to us professionally was most aptly put by Eugene J. Lyons, special assistant to the President for personnel management, at a March 2 joint meeting of our Society's Washington Chapter and the Federal Safety Council. Mr. Lyons said, in part:

"Right now the safety profession should be giving serious thought to the impact new processes, new products, new sources of power and the changing pattern of the mobility of people will have in terms of engineering, enforcement and educational programs. . . If it can be assumed that the (Society) embodies the majority of the professional safety

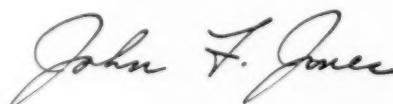
personnel, then I raise two pertinent questions: 'Is this enough to provide the needed manpower of professional safety skills to meet the needs of the predicted expanding economy?' And second, 'What measures are your national professional Society taking to upgrade the skills of your present membership to meet the new safety problems you will be expected to handle?'

"I say this because some years ago business and industry assumed that any individual who had perpetual enthusiasm, was a reasonably good promoter and got along with his associates in the line operating organization, was qualified to direct a safety program. I do not need to tell you that this is no longer the case. It will be even less the case in the decade ahead with mechanization and automation assuming rapidly increasing importance.

"Technical and professional training are becoming more and more essential to the safety director. . . Training personnel to work safely in a completely new environment is no task for an amateur. . . Not enough effort is being directed toward encouraging young people to enter into the safety profession and not enough universities and colleges are integrating safety into professional curriculums. . .

"(Future success) will be largely determined by your efforts to orient management to the need and value of employing safety professionals—as well as providing for in-service professional development to upgrade present safety skills—and to convince other professional groups that they have a fundamental responsibility to engineer and design safety considerations as an integral part of their professional specialty. . .

"I hope I can leave one thought with you. Lift your sights. It is imperative that you develop a new dedication, a new enthusiasm for your profession. Make realistic plans for providing better qualified personnel in adequate numbers to meet the pressing needs of the future. And be sure that you personally are keeping pace with the changing world—for the challenge of safety is a challenge to the safety engineer."



JOHN F. JONES, PRESIDENT
AMERICAN SOCIETY OF SAFETY ENGINEERS



The Changing Nature of the Work Force

BY EWAN CLAQUE

Author Ewan Claque was one of the opening speakers March 1, 1960, at the President's Conference on Occupational Safety in Washington, D.C. Mr. Claque's speech was, of course, keyed to the overall conference theme, "The Challenge of Safety in a Changing World," and carried the same title as the article presented here, which has been especially adapted from the speech.

Ewan Claque is commissioner of labor statistics, U.S. Department of Labor, a position he has held since 1946 except for one year (1954-55) when he served as special assistant to Secretary of Labor James P. Mitchell. He also is a former professor of research and statistics, University of Pennsylvania.



AS HAS BEEN pointed out a number of times, all of us can expect that the decade of the 1960's will bring vast changes—both in our private lives and in our occupational activities. These changes will have a particularly heavy impact upon the occupational safety movement. Those of us who have responsibilities in the field (and who does not?) will have to face new problems and conditions.

Our whole approach to occupational safety may have to be changed. If we fail to anticipate the new problems that are going to confront us and fail to orient our accident prevention activities to the new circumstances and conditions under which we shall be working, we may fail in our objectives. It

POPULATION WILL INCREASE BY 15%, TO 208 MILLION IN 1970

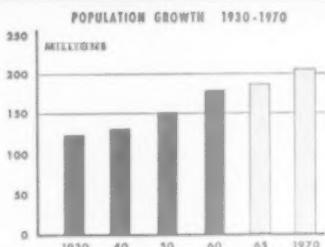


Figure 1—To orient our thinking, we first should look at the probable changes in our total population. It appears that the rapid population growth of the 1950's will continue through the 1960's. Total population is expected to rise from 180 to 208 million—or by 15 per cent over the decade. At the same time, the age distribution of our population will change. We shall have many more older persons and young people.

behooves all of us, therefore, to look closely at the probable pattern of change during the 1960's and to start planning our safety activities accordingly.

POPULATION GROWTH WILL BE ESPECIALLY RAPID AMONG YOUTH REACHING WORKING AGE

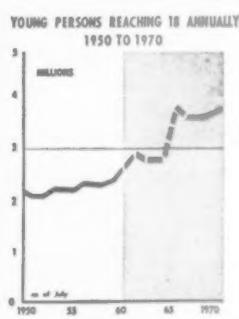


Figure 2—The number of young persons reaching 18 years of age will increase rapidly—from 2.6 million per year in 1960 to 3.8 million per year in 1970. This large growth in the number of young people reflects the sharp rise in birth rates during and immediately following World War II. The 18-21 age group—from which our young workers come—will expand from less than 10 million in 1960 to nearly 15 million in 1970.

WORKERS WILL INCREASE FASTER THAN POPULATION; BY 20% TO 87 MILLION IN 1970

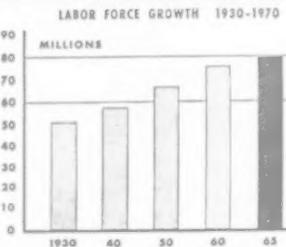


Figure 3—Turning now to the labor force with which occupational safety is directly associated, we find that this group will grow from 73.6 million in 1960 to 87.1 in 1970. The increase in this period will be by far the largest in any decade of our history. The growing number of young people and the increasing participation of women, particularly of those over 35, will be the two principal factors in this expansion.

Probably we all have heard and read discussions concerning what we may expect to see in the way of new work processes and changes in the work environment. The problems arising from these changes alone will tax the abilities of all of us in the safety movement. But these problems do not stand alone. Safety is not simply a matter of working conditions. Safety is concerned with people and we in the safety movement must always take into account the people with whom we work—both in terms of their number and their characteristics.

The ten charts which accompany this article (Figures 1 through 10) outline some of the changes we expect in this area—changes which I am sure will create problems in the field of safety. These charts highlight the Department of Labor's recently com-

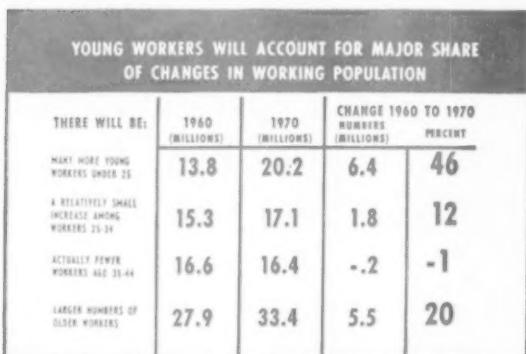


Figure 4—Changes in age distribution of the labor force will be striking and significant. Workers under 25 and workers 45 and over will account for almost 90 per cent of the total increase. The 25-34 age group will show only a small expansion. The 35-44 age group will decline, particularly in terms of male workers—important because this age group normally supplies a large proportion of executives, managers, foremen and highly skilled workers.

pleted analysis of the labor force changes expected in the decade of the 1960's.

The statistics presented in the charts, and the trends they indicate, have many implications for the safety movement. If injury frequency rates hold at about their present levels throughout the decade, we can expect the volume of work injuries to rise in proportion to the increase in employment. Starting with this assumption but taking into account the variation in employment increase anticipated in the different classifications of industry, it appears that we could have some 340,000 more disabling work injuries in 1970 than we had in 1959.

But past experience indicates that in every period of expanding employment, injuries have tended to

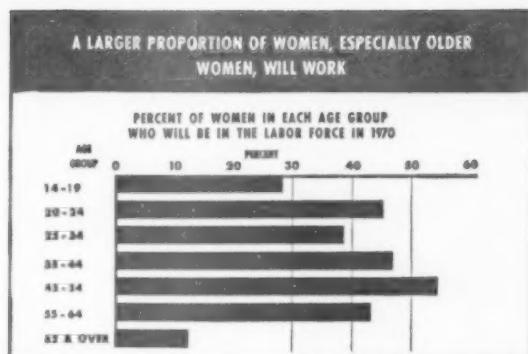


Figure 5—Concerning the increase in the labor force which is anticipated during the next decade, approximately 3 million of the additional workers will be women who are more than 45 years of age. By 1970, nearly one-half of all women aged 35 to 64 will be in the labor force. Many of these women either will not have had any previous work experience or at least will not have been in the labor force for some years.

rise faster than employment. We have current evidence of this in the record for 1959. If this tendency continues, our crude estimate of a 340,000 increase in the annual total of disabling injuries by 1970 probably is much too low. Obviously, the objective of the safety movement during the next ten years must be to eliminate and, if possible, to reverse this upward tendency.

We cannot say positively what creates this tendency for injuries to rise faster than employment. There is persuasive evidence, however, to support a conclusion that we build our safety programs too thin. At best, they are designed to cope with current

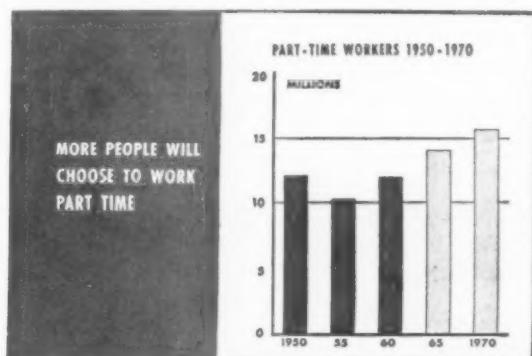


Figure 6—Another expected development is a large increase in part-time workers, who should number about 16 million in 1970—a rise of more than 30 per cent from 1960. Many will be young people who also will be attending school. Others will be women who will divide their time between work and homemaking. Significantly, members of this group frequently move in and out of the labor force and tend to shift from one job to another.

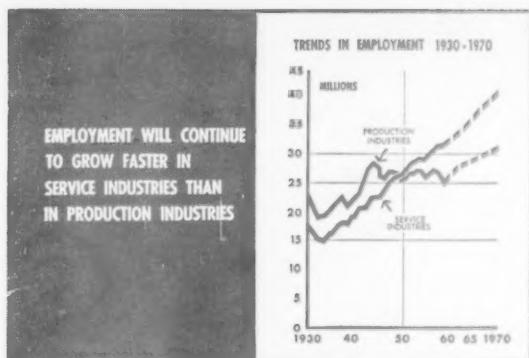


Figure 7—Since 1950, the number of workers in the service industries has been greater than the number employed in the production industries and the differential has been constantly widening. This tendency is expected to continue through the 1960's and, by 1970, about 57 per cent of all workers will be in service industries. Employment in the service industries is expected to rise more than 25 per cent; in the production industries, about 14 per cent.

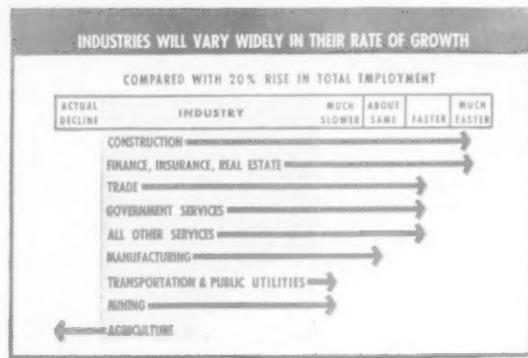


Figure 8—Although expansion is expected in nearly all industries, the rate in terms of employment will vary widely. Considering broad categories, a very high growth rate is seen for construction, finance, insurance and real estate; above average for trade, government and other services. Employment in manufacturing will grow about as fast as total employment, with only small gains in transportation, public utilities and mining. Agriculture will show a decline.

problems and rarely have reserve resources to meet changing conditions. The buildup of these resources seems to come only after the unfavorable effects of changing conditions have become apparent.

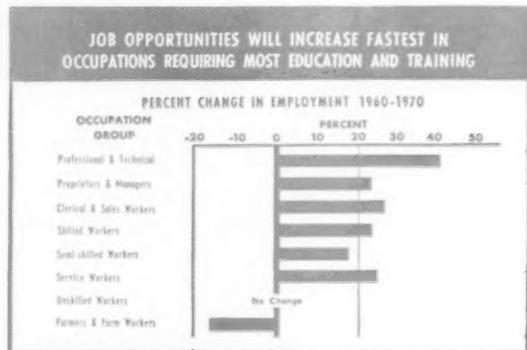
In our past experience, we find evidence that extensive shifting of regular workers tends to force injury rates up, just as does the introduction of large numbers of new persons into the work force. We also know that industries which have a high ratio of casual or part time employment tend to have higher injury rates than those which have stable employment.

All of these factors appear in the employment outlook for the 1960's. These influences we can identify and evaluate with some degree of assurance. Less definitely, perhaps, we can say that the rising proportion of young people and women in the labor force may require revamping our accident prevention procedures. Certainly, it is indicated that we must expand our safety activities in construction and in the service industries. And we may have to develop new techniques to insure the safety of the rapidly growing group of professional and technical workers.

Figure 9—When we look inside the broad industry classifications for more detailed information on the changing characteristics of employment, we find a rapidly changing occupational pattern. In broad categories, the so-called "white collar" group of occupations is growing rapidly. The "blue collar" occupations are growing at a slower rate but employment in the agricultural occupations is declining. These trends are expected to continue through 1970.



Figure 10—Greatest proportionate growth in employment will be in professional and technical occupations. Clerical, sales and managerial occupations will grow faster than the average. In manual occupations outside agriculture, the most rapid rise is expected among the skilled workers, with less rapid increase in semiskilled workers, a reflection of growing automation. For unskilled workers, employment is expected to hold fairly constant at the present level.



BY C. RUSSELL DE REAMER

our
Society
must
prepare
TODAY
for
TOMORROW



C. Russell DeReamer, safety manager for International Business Machines, for many years was associated with General Electric, where he entered safety work in 1940. A Purdue graduate, he joined the Society in 1944 and is a member of the Metropolitan Chapter. He is author of the book, *Modern Safety Practices*.

THE AMERICAN SOCIETY OF SAFETY ENGINEERS, in an effort to maintain a sound, dynamic and progressive organization, must focus more attention on goals and objectives. Like planning a trip—our Society must decide where it wants to go and how it plans to get there.

Once clear, well defined goals and objectives are agreed upon, Society members—and in particular our Executive Committee—will be able to act with initiative, confidence and in harmony with a majority of the membership. We will have answers to these questions:

- Should the Society remain exclusively identified by title and objective with *engineering*?
- Should the Society encompass the broad field of safety or confine its activities mainly to industrial safety?
- Should the present Society organizational structure be retained or is a reorganization required to better achieve our goals?

At the moment our Society is embroiled in a lively debate: "Should we remain an engineering society or become a safety society?" This question has been identified as our main problem but it is only a symptom. With industrial organizational structures in a state of flux, with new management methods and concepts being introduced on every hand, with new technologies and new materials being put to use, the primary problem of our Society is connected with change. The 1950's saw the era of change begin. The pace will be quickened through the sixties. Can our Society, as it presently is structured and administered, meet the safety challenges of the next decade? Are we preparing for change or are we allowing the glorious past to be our guide? This is the issue.

NEW TECHNOLOGY DEMANDS NEW METHODS

These are some of the changes ahead. Technological developments will be more intricate, more complicated and more scientific than during the last two decades. Equipment design, processes and sys-

tems usually will involve several fields of engineering, chemistry and physics. Hence the safety specialist will have an increasingly difficult task to keep up to date on the many advances and changes which will mark the coming years. He will find new areas in his own field in which he must be informed and an ever mounting mass of safety information which he must digest.

This being the case, it is likely that the safety specialist also can remain informed and knowledgeable in the various fields of engineering? Obviously with the rapid technological advancements predicted and the broadening scope of the safety job, it would be a Herculean task to keep abreast of both safety and engineering areas.

Therefore, in our look ahead it might serve the best interests of our Society to bring the safety elements of the safety job into much sharper focus. Safety personnel, by concentrating on safety and leaving the engineering for the engineers, would create a better opportunity to gain greater skill and competence in the field of safety. As a matter of fact, considering the breadth and depth of the engineering disciplines, it would be prudent for safety specialists to avoid making "engineering" decisions even if qualified to make them. By concentrating on the safety elements of the safety job, the overall effectiveness of safety personnel would be increased, more safety principles and techniques would be developed and the professional status of safety personnel would be enhanced. Becoming expert in the field of safety would be the goal.

"SAFETY EXPERT" CAN WIN PRO STANDING

It should take no great stretch of imagination to visualize that this "safety expert" approach is no different from the situation which exists when the engineer or the manager seeks the advice and counsel of the medical director or the company counsel. When either the manager or the engineer goes to the medical director, he wants medical advice; when he goes to the legal counsel he wants advice on some legal problem. He recognizes the doctor and the lawyer as experts in their respective fields. He anticipates receiving advice based on either a medical or legal discipline—not medical-engineering or legal-engineering. Likewise, safety personnel must strive for recognition as professional safety experts. When the engineer goes to the safety specialist, he should expect professional safety advice and he should recognize the safety specialist to be more competent than himself to give such advice.

In determining the objectives and the course that will serve the best interests of our Society, it would be wise to ask: "Should we advance the arts and sciences of safety or the arts and sciences of engineering? Which course is more likely to provide the professional status we seek?"

Of course, it is not denied that an engineering degree does provide an excellent background for some safety jobs. Nevertheless, in establishing our goals and objectives it would appear appropriate to place more emphasis on the development and refinement of safety principles and philosophies than on the promotion of the arts and sciences of engineering. If our Society should continue to embrace the engineering viewpoint, are not the odds pretty high that the end result would be neither good engineering nor good safety?

LEADERS IN SAFETY GIVE VIEWS

Several leaders in the safety field have given this safety versus engineering problem much thought. In the November, 1955, issue of *National Safety News*, H. W. Heinrich, an illustrious pioneer in safety, asks: "Can Safety Stand on Its Own Feet?" He states:

"Accident prevention encompasses knowledge, thought and action on a broader scale than other professions. Is its future to be tied up wholly with engineering or can it become a distinct and recognized profession? Neither medicine nor law dilutes its professional name by addition of any other profession and for the society which serves it so well high time to take stock of values and objectives to decide now whether it is best for the safety profession and for the society which serves it so well to identify itself even more closely with engineering—the safety profession might find itself admitted within the engineering group but on its fringes."

Arthur Christian, corporate safety director for American Viscose Company and vice president of the Society's Eastern Region, makes this succinct observation:

"It is my feeling that the so-called 'engineering approach' to safety, as we know it now, is but one phase of evolution. Possibly we could call it a battle won. Today safety is included in the engineering of most new products—it has to be. We have yet to win the war and that is why I think we must broaden our sights to make safety really a profession."

Obviously many of our members believe the Society more likely would attain status and recognition as an independent organization devoted to safety than it would as an engineering society. The Society might consider facing this challenge of creating its own image rather than creating an image which is the reflection of another society.

SOCIETY RECORD JUSTIFIES LONE STAND

In deciding upon objectives for the future, we must face facts. Our Society has reached a point in its progress where there no longer is any need for timidity regarding its status among leading societies. The Society does have a record of achievement and growth that justifies the creation of its own image. Safety principles and philosophies have been established and tested. Safety personnel have risen to positions of distinction in many organizations. The educational, psychological, management and engineering aspects have been identified and usually are considered of equal importance. Why not build on these strengths?

Of course, those who believe our principal objective should be "to promote the arts and sciences connected with engineering in its relation to accident prevention and the conservation of life and property" have the impact of history to support their views.

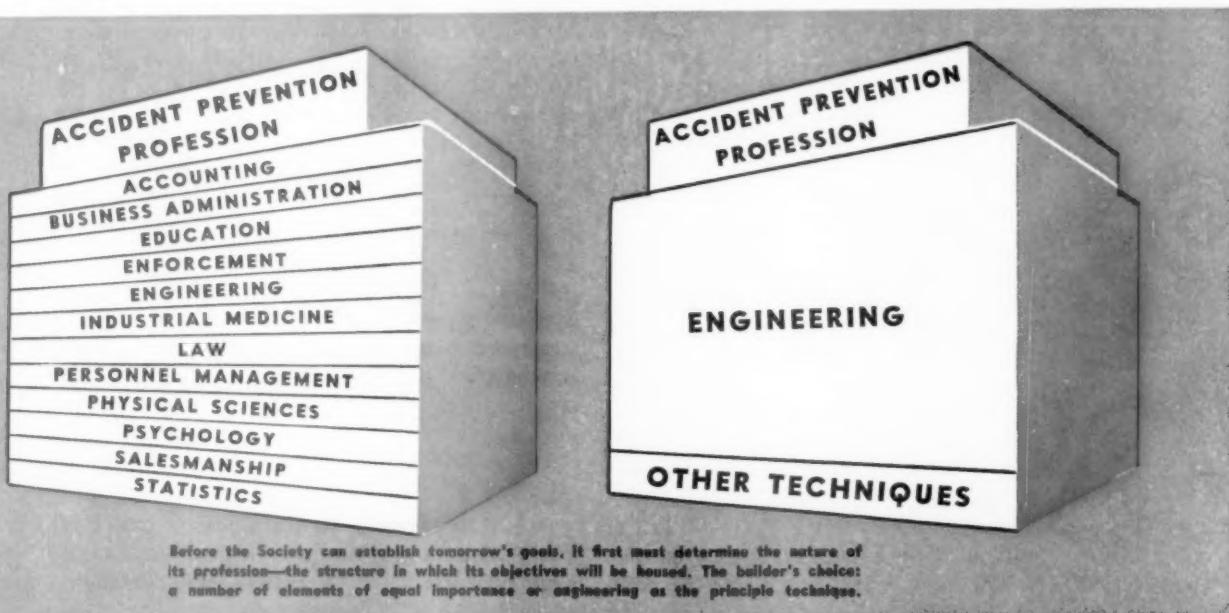
EARLY EMPHASIS ON ENGINEERING

In the early years of the safety movement the emphasis was on engineering. For many years our Society was the Engineering Section of the National Safety Council. The title, "safety engineer," was widely used and, as our Executive Committee points out, our objectives are closely related to those of the founder engineering societies. But history, coupled with the human characteristic to resist change, can be misleading. In the establishment of

objectives the *facts* as they exist today—and those changes which we can predict—must be our guide. These are the facts:

- A large percentage of Society members are not engineers.
- About 80 per cent of all safety specialists report to personnel, less than 2 per cent report to engineering.
- Not a single "safety engineering" book has been written in the long history of industrial safety.
- Few employers require their safety personnel to have engineering degrees.
- A review of the job descriptions of many safety managers and safety directors reveals few and in most cases no engineering duties.
- The title, "safety engineer," is being used much less by industry; titles such as "safety manager" or "safety director" apparently are preferred.
- The Society is not presently recognized as an engineering society by engineering groups, by the Joint Engineering Council or by employers.
- The term, "safety engineering," lacks a clear definition—it could be either mechanical, electrical or chemical engineering, or perhaps all three.

By not reaching an agreement regarding the nature of the safety job, are we not confusing management and failing to obtain the recognition the safety function so richly deserves? On one hand, we say it is an "engineering" function but, on the other hand, the facts tend to say it is not. Perhaps the problem is one of confusing the use of practical engineering



knowledge in safety work with the actual practice of engineering.

Dr. Walter A. Cutter, director of the Center for Safety Education, New York University, and Thomas H. Wilkenson, director of safety, Department of Army, in their paper, "Toward the Profession of Safety Program Management" (*National Safety News*, October, 1959), ask three pertinent questions:

1. How much true engineering is practiced by the average specialist in accident prevention?
2. How much engineering, and for what purposes, is required by employers?
3. How many of the established elements of today's practice are engineering in nature?

Answers to these questions undoubtedly will vary by individual. But on one point there should be no compromise. Our Society, in deciding on its future course, should strive to become an engineering society with objectives fully in accord with an engineering concept *or* it should strive to become a safety society with objectives fully in accord with a safety concept. We can't take a middle road and hope for any degree of success.

WHAT IS NATURE OF SAFETY JOB TODAY?

Those who speak of safety as a profession usually are speaking in terms of the overall effectiveness of safety personnel and the potential that might be reached if the right objectives are established. In deciding where the Society is going, it would be appropriate to take a careful look at the safety job. Is it the same job that it was 20 years ago or even 10 years ago? Is the same type person being selected for the job or have the requirements changed? Is the average safety assignment now short term, long term or terminal?

In viewing this aspect of the problem we must make sure that personal involvements or our own safety experiences do not distort our point of view. We must have the courage and the integrity to recognize change and then make the most of it. We must accept a concept and a framework for the safety job of the future which might be much different from that of the past but, nevertheless, much more attractive and acceptable to management.

A plea is being made to examine and recast present Society objectives carefully in the light of the dynamic changes that have taken place and can be anticipated in the next decade. John Juli, safety manager of the Consolidated Western Steel Div., U. S. Steel Corporation, and a past national president of our Society, sums up the plea in an "Our

President Speaks on Safety" column (in the August, 1958, *Journal*) as follows:

"Our relatively young profession is growing rapidly toward maturity; the moment of decision has arrived when we must determine the character of that maturity. We must define, clearly and accurately, the areas of knowledge and standards of performance which give us a legitimate claim, before management and the world, as specialists of professional standing. And first of all, we must reach agreement on the basic nature of our work."

PROFESSIONAL MUST BELIEVE IN HIMSELF

There are many who believe fervently that our members can stand before management and the world as "safety" specialists of professional status. But to do this we must believe in ourselves and help make our Society great by thinking greatly of our role as safety specialists. Instead of trying to prove who is right or wrong regarding the argument of engineering versus a safety specialty, it would be better to join forces and establish sound objectives for a growing Society. Those who favor the engineering concept have much to support their case. Likewise, those who favor the safety concept have much to support their case.

The important point is that we must select objectives and a future course that will serve the best interests of our Society. We must decide where we want to go; then we can decide how we want to get there. But in doing this we cannot overlook change.

FUTURE SPECIALIST TO BE ADVISER

In the past the industrial safety specialist has been the doer. In the future he will be the catalyst, the adviser, the teacher who precipitates safety action on the part of line managers. This is true because management has been conditioned to think in terms of safety as a line manager's responsibility. This puts the safety job in a new and an exciting perspective.

In the past the safety specialist was concerned mainly with in-plant safety. But the growing understanding and appreciation by management of the importance of accident prevention encompassing the whole environment of industry—the plant and the community—will change greatly the position and the role of the safety specialist. He will need to have a broader outlook, a greater understanding of management principles and improved skills in the art of persuasion and motivation.

It is these changes taken all together which will constitute the big challenge and opportunity facing members of the American Society of Safety Engineers as we prepare today for tomorrow.



The ACCIDENT PREVENTION COMMITTEE

of the EDISON ELECTRIC INSTITUTE

BY ARTHUR J. NAQUIN

THE ACCIDENT PREVENTION COMMITTEE of the Edison Electric Institute was organized in 1934 and held its first meeting in Cleveland, Ohio, on October 3 of that same year. At first, only two meetings were held per year, each of two days duration. In 1940, three meetings were scheduled for the year and this practice continued until 1956, when the sessions were increased from two to three days each in order to return to a semiannual series of assemblies—an arrangement brought about by the ever increasing number of national, regional, state and local safety organizations which bid for the time and capabilities of professional electric public utility safety engineers.

Looking first at the parent body, the objectives of the Edison Electric Institute are stated as follows:

1. The advancement in the public service of the art of producing, transmitting and distributing electricity and the promotion of scientific research in such field.
2. The ascertainment and making available to the members and the public of factual information, data and statistics relating to the electric industry.
3. To aid its operating company members to generate and sell electric energy at the lowest possible price commensurate with safe and adequate service, giving due regard to the interests of consumer, investor and employe.

In a similar vein, the purpose for which the EEI Accident Prevention Committee was organized was "to provide safety leadership and know-how to member companies and the electric utility industry at large."

The activities of the committee are constantly increasing as new tools, new methods, new forms of equipment and new techniques have developed within the industry. For example, the generation of electricity in atomic fired power plants has created

a good many new accident prevention problems. The basic activities of the committee have been summarized as follows:

1. To study accidents in the electric utility industry to determine the causes of death or injury to members of the industry and the general public.
2. To compile and publish adequate statistics concerning such injuries or fatalities.
3. To exchange ideas concerning techniques and practices that will safeguard employees and the general public.
4. To prepare visual and/or educational training aids.
5. To prepare safety equipment specifications.
6. To encourage research and training in first aid and artificial respiration.
7. To provide suitable recognition for outstanding safety performance.

At the present time, the EEI Accident Prevention Committee is composed of safety representatives of 72 operating companies, three service organizations, an EEI staff secretary, and three associates who are specialists in the respective fields of visual aids, ventricular fibrillation and general organized safety (National Safety Council). The committee also has available the services of a Medical Task Force of eight members and an Atomic Plant Safety Task Force of seven members. The operating company



Arthur J. Naquin, currently chairman of EEI's Accident Prevention Committee, is safety counselor for New Orleans Public Service Inc., with which he has been associated for 34 years. A graduate engineer (Tulane), he joined our Society in 1942, is a charter member and past officer of the New Orleans Chapter.



Meeting of the EEI Accident Prevention Committee in Atlantic City, New Jersey, November 9-11, 1959.

eei accident prevention committee *continued*

members come from companies operating in every state in the Union except Alaska, Maine, Montana, Nebraska, Tennessee and Wyoming. Usually, some 40 manufacturers' representatives attend the semi-annual meetings and participate in the discussions of those subcommittees with which they are most concerned.

The work of the Accident Prevention Committee is carried on by an Advisory Council and 23 subcommittees. Liaison also is maintained with 14 other groups such as the American Institute of Electrical Engineers, the American Standards Association and the National Safety Council. The titles of the subcommittees and a brief statement of their activities are as follows:

Accident Exchange—publishes four times per year a 40 page summary of some 20 to 25 typical accidents which have resulted in death or serious injury. The names of the employes or their companies are not given. The known facts concerning each injury are summarized and usually are accompanied by photographs or diagrams. Recommendations for the prevention of similar injuries are given. About 5,000 copies are distributed each year.

Accident Rates and Fatalities—publishes annually a "Review and Classification of Fatal Accidents within the Electric Light and Power Industry." This summary tells the grim story of each victim's job classification, voltage involved if electric shock or burn was involved, path of current and just what the victim was doing. Some 23,000 copies of this publication are placed in the hands of industry foremen and supervisors each year and the subject matter is widely used in "tail board" conferences.

The above subcommittee and EEI staff also publish annually a report entitled, "Accident Experience of the Electric Light and Power Industry." The employe injury record of both privately managed and government managed electric utilities is given. All companies are identified only by a code number.

Aerial Basket Equipment—is formulating a set of recommended safe operating practices for this relatively new form of automotive equipment which enables a lineman to manipulate an insulated basket platform to convenient working position among energized conductors.

Atomic Plant Safety—with the assistance of its associate Task Force, is endeavoring to standardize the method of recording cumulative exposure to radiation in atomic fired power plants and to prepare a bibliography of publications on basic safety problems relating to nuclear power plants.

Climbing Equipment—stresses the causes of linemen's cutouts (fall from poles) and how they can be prevented. It is preparing a new publication combining the best features of two older publications, "Linemen's Cutouts" and "Use and Care of Linemen's Climbers." It deals with the care and use of linemen's body belts and safety straps.

Electric Shock and Burn—publishes annually a report concerning all known cases of injury due to electric flash or burn, including nondisabling injuries.

Electric Shock Prevention—is concentrating on the most prevalent cause of fatalities in the industry. It is coordinating the efforts being made by a number of the subcommittees to "Stop Shock." It is formulating a long range program aimed at preventing employes from accidentally coming in contact with energized equipment or conductors.

Fireman Safety—is helping to expedite the re-publication of the excellent booklet published by the University of Michigan entitled, "The Fireman and Electrical Equipment." In this booklet, procedures are set forth to insure that firemen will not be accidentally electrocuted while engaged in extinguishing fires.

Governmental Activities—is a "watchdog" sub-committee whose function is to examine all proposed governmental regulations which, in the name of safety, may impose undue hardship on the electrical industry or all industry.

Grounding Practices—is working with the Transmission and Distribution Committee of EEI to codify the best known and accepted practices for grounding circuits and equipment protectively.

Management Relations—is a liaison between executive, administrative and supervisory management and the professional electric utility accident prevention engineer. Management is ever willing to participate in the vital job of preventing employee injuries but often needs advice and suggestions as to how such participation can be made most effective.

Monthly Safety Package—is a group that has undertaken the task of providing the electric utility

making left turn, etc.) and the accident rate per 100,000 miles of operation. The average rate of 1.78 experienced in 1958 by 53 reporting companies which operate 564,004,051 miles is, admittedly, a rate that needs to be lowered.

Nonemployee Overhead Line Contacts—is cooperating with the National Safety Council in the development of posters, stickers and other printed materials designed to tell the general public how to avoid accidental contact with energized overhead conductors while operating cranes, pile drivers, hay derricks, model airplanes, etc. . . or just flying a kite.

Protective Equipment—periodically compiles industry practices concerning the use of rubber protective equipment such as gloves, sleeves, line hose, blankets, hoods, and the use of insulated hard hats and portable insulated platforms. It has liaison representatives on the ASA J6 Committee. It is planning to revise the excellent booklet, "The Application and Care of Rubber Protective Equipment."

Publicity—cooperates with technical journals of the electric utility industry by supplying them with articles, reports and photographs dealing with employee injury prevention. It studies all ads of manufacturers in the technical press and, diplomatically,

EMPLOYEE INJURY RATES (from the National Safety Council's "Accident Facts")

YEAR	FREQUENCY		SEVERITY		NUMBER EEI APC MEMBERS
	AVERAGE FOR 40 INDUSTRIES	ELECTRIC UTILITY INDUSTRY	AVERAGE FOR 40 INDUSTRIES	ELECTRIC UTILITY INDUSTRY	
1947	13.26	15.96	1230	2390	36
1948	11.49	15.20	1120	2110	36
1949	10.14	14.02	1020	2370	37
1950	9.30	11.96	940	1960	37
1951	9.06	11.06	970	2000	38
1952	8.40	11.06	880	1660	47
1953	7.44	9.43	830	1560	49
1954	7.22	8.62	800	1520	50
1955	6.96	7.62	815	1519	56
1956	6.38	6.84	733	1384	61
1957	6.27	6.39	740	1382	58
1958	6.17	6.39	744	1065	65
1959					75

industry with a monthly "package" consisting of a safety poster, a leaflet and a crew leader's letter—a service available for purchase each year from EEI.

Motor Vehicle Safety—is a comparatively new subcommittee which assembles data annually on the number of motor vehicle accidents experienced by the industry, where they happen (while backing,

calls attention to those instances where linemen and other employees are shown improperly attired or working in obviously unsafe positions.

Question Box—is the industry's clearing house for questions relating to safety practices or equipment. Approximately 200 "round table" questions are submitted in writing each six months by members of

the Accident Prevention Committee and the composite answers are discussed as much as time will permit at the semiannual meetings.

Resuscitation—deals not only with the techniques of administering artificial respiration but is sponsoring a professional study at Johns Hopkins University on the causes of ventricular fibrillation and the development of field equipment that will restore heart action in victims of electric shock. The subcommittee recently prepared a "Resuscitation Manual" which states that the mouth-to-mouth method is considered preferable to all other techniques. Over 15,000 copies were promptly sold and the booklet is now in its second printing.

Safeguarding Energized Work Areas—is restudying the matter of how to best safeguard employees who are working around indoor and outdoor substations and other similar installations. In 1958 it published a report entitled, "Injuries in Substations—1957."

Safety Awards—is examining those bases on which superior safety performance might be acknowledged and rewarded. At the present time, the industry presents Certificates of Safety Achievement to companies and divisions or units thereof which work 1,000,000 or more manhours without a disabling injury. About 150 of the Safety Achievement Award Certificates are presented annually. The subcommittee is endeavoring to design a suitable emblem and phrase an appropriate slogan relative to the work of the Accident Prevention Committee.

Safety Devices, Materials and Methods—displays at the semiannual meetings the latest safety devices and materials that have been brought to the subcommittee's attention. Much of the material exhibited was designed and produced by operating companies.

Visual Aids—is continuously engaged in producing or helping to produce motion pictures and sound slide films which deal with specific industry safety subjects. It also keeps the general committee informed as to what EEI member companies have produced such as the film, "Electric Power and Common Sense," which was produced by six New England electric companies, and "Take Another Look," which was produced by the Commonwealth Edison Company of Chicago.

Uniform Safe Work Practices—is engaged in the monumental task of preparing a manual of recommended safe working practices that are accepted and used throughout the entire electric utility industry. Already, most of the 14 sections of the pro-

posed manual have been written and redrafted from three to five times. When completed, it will fill a long-felt need of the industry.

What, you may very well ask, has all this committee work accomplished for the industry? At first, the work of the committee had very little effect in the industry, for all too few electric utility companies were represented on the Accident Prevention Committee, apparently only 18 at first.

From 1934 to 1947, the committee increased to 36 members and, in the meantime, the industry's frequency rate rose from 8.98 in 1934 to 15.96 in 1947. During this same period, severity averaged 2130 per year with no great fluctuation. In contrast, the frequency rate for all industry dropped from 15.29 in 1934 to 13.26 in 1947. Apparently, the EEI Accident Prevention Committee was fighting a losing battle due, no doubt, to the electric utility industry's very rapid growth.

Since 1947, the accident rate trend for the industry has reversed and has continued to decrease until, in 1958, the electric utility industry's frequency rate of 6.39 was just below the 6.17 average rate for all industry. A study of the table, "Employe Injury Rates," will show what has been accomplished during the last 12 years.

As may be expected, active committee work brings its own reward. A study of the 1958 injury rates of those companies which are represented on the EEI Accident Prevention Committee shows that the average frequency rate for the 71 operating companies was slightly less than half of what it was for those companies not represented on the committee—0.98 disabling injuries per 100 employees versus 1.97. The number of days lost per employee was 1.87 for represented companies versus 2.76 for those who were not represented. A fatality occurred for every 5,198 employees of the first group, whereas those companies not represented on the committee experienced one fatality for every 3,310 employees.

It shall be the endeavor of those who direct the activities of the EEI Accident Prevention Committee to increase the size of its membership at a reasonable rate, to keep abreast of the safety problems of the industry and to bring the benefit of the activities of the committee to the entire electric public utility industry and to industry as a whole.

The research work that is being carried on concerning defibrillation is just one example of accident prevention work that will benefit all industry. The EEI Accident Prevention Committee stands ready to cooperate as best it can on all projects aimed at safeguarding the industrial workers of America and the general public.



James B. Black has been safety officer for the National Institutes of Health for 10 years and has been in safety work some 20 years. A graduate mechanical engineer (Northwestern), he joined the Society in 1947 and is a member-at-large. He also is a member of NSC's Chemical Section Executive Committee.

In "Impact Test on Glass," by C. A. Pippin of the Dow Chemical Company (Journal, August, 1958), data were presented on impact strengths of various types of protective glass. A table from that article is reprinted below, with summary of procedure used (see Table I). In reply, Author Black points out that Dow's tests were concluded with a blunt object type blow and that impact from explosion produces different results.

... more about IMPACT TESTS ON GLASS

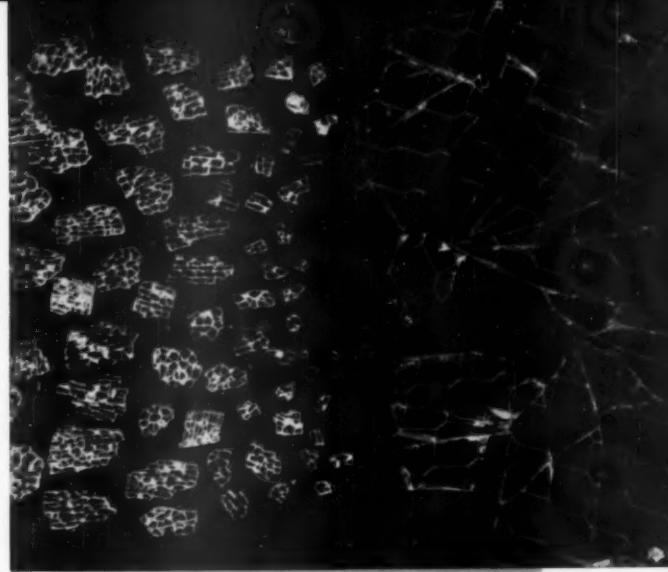
BY JAMES B. BLACK

TESTS TO DETERMINE the safest type of glass for a typical chemical exhaust hood showed impact resistances of the various glasses in almost reverse proportion to the data (Table I) of the Dow tests. Since some wrong, general conclusions may be drawn, although the data in Table I are not in question, results of another type of impact test are presented here. Two items indicate the direction of this comparison: Table I indicates that wire glass has a somewhat higher average impact strength than laminated glass (see Figures 2 and 4).

TABLE I—Test, Cost and Impact Strength Data

Tests reported in the August, 1958, Journal used this procedure: an 18 x 24 inch piece of the glass under test was framed in wood and rested on a one inch pad of foam rubber. A felt-covered ball weighing 6.685 pounds was dropped from increasing heights until the glass failed.

	Average Impact Strength Pounds-Inches	Approximate Cost per Square Foot
Double strength (1/8 in.)	25	\$.55
Laminated (1/4 in.)	110	.80
Plate glass (1/4 in.)	110	1.25
Wired glass (1/4 in.)	112	1.02
Allyl ester plastic (1/4 in.)	555	4.62
Tempered glass (1/4 in.)	582	2.60
Acrylic resin plastic (1/4 in.)	1,086	1.49



Photographic comparison shows how tempered glass fractures into cubical or rectangular fragments or groups of such particles still adhering to each other, while wired glass fractures and slivers and its wiring also fails.

Compare also the items tempered glass and laminated glass in Table I with the data of Figures 3 and 4. Although tempered glass has an extremely high impact strength against a certain type of blow such as from a blunt object, it has considerably less impact resistance than laminated glass against a sharp object.

The photographs that follow were made by a remotely controlled high speed movie camera (3000 frames per second) set at approximately 165 degrees from the plane of the glass surface. Tests were conducted April 4, 1952, at the Naval Ordnance Laboratory.



Figure 1. The explosive charge, in a 1000 ml. erlenmeyer flask, was centered at a height of nine inches in a model of a chemical exhaust hood. The bottom of the glass sash was secured partly open. The top was not framed. The sides were in sheet metal guides.



FIGURE 2

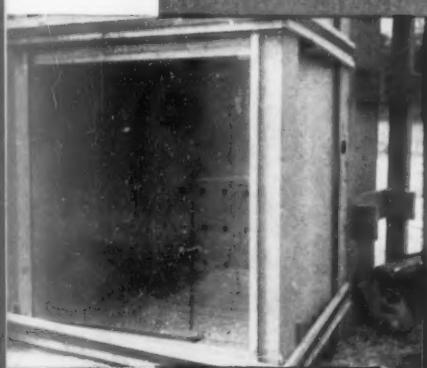


FIGURE 4

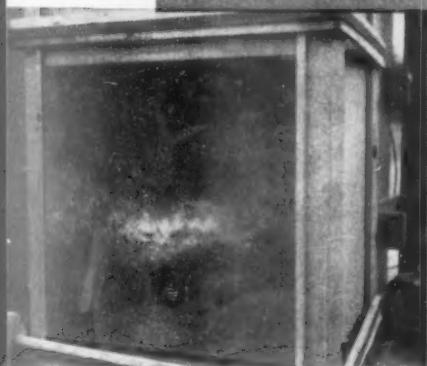


FIGURE 6

Figure 2. One gram of tetryl detonated against a 3 x 3 foot section of $\frac{1}{4}$ inch wire glass blew a few fine slivers of glass five or six feet from the hood. Most of the wires in the crack from the top were broken; some of the wires in the lower vertical crack were broken. This glass could not have withstood additional impact. The white specks in the maximum impact area are particles of the exploded flask.

Figure 3. Explosion of 3 gram of tetryl against the same size and thickness of tempered glass blew out the whole section. The largest portion dropped immediately in front of the hood and other pieces landed up to eight feet away, a few as far as 30 feet away. The glass crackled for several minutes after the explosion, indicating that disintegration was still in progress. Most of the particles were small, but several 15 to 20 square inch pieces were blown two to four feet from the hood.

Figure 4. In the test against $\frac{1}{4}$ inch laminated safety glass, no flying slivers could be observed. The outside surface felt smooth; it was difficult to detect cracks. The glass could have withstood considerably more impact.

Figure 5. Two grams of tetryl were exploded against a new piece of $\frac{1}{4}$ inch laminated safety glass. The glass was intact after the explosion but could be wobbled, its vertical axis held mostly by the plastic lamination. It could have withstood a slight increase in impact. The glass felt smooth and appeared not to have slivered.

Figure 6. Two grams of explosive were used against $\frac{1}{4}$ inch acrylic resin plastic sheet (Plexiglas). The plastic withstood the explosion perfectly except for permanent clouding and scratches from flying particles of the glass flask.

Figure 7. Five grams of explosive were used against the same piece of acrylic resin plastic. Still there was no cracking, but the sheet bent vertically and pulled out of the sheet metal guide.



FIGURE 3

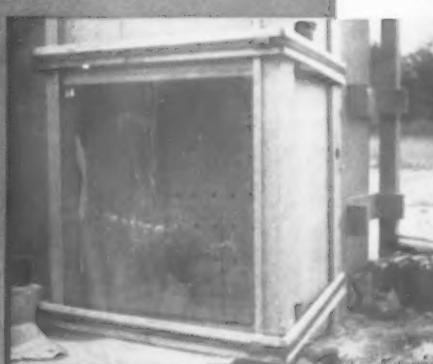


FIGURE 5



FIGURE 7

The conclusions drawn from these tests of protective glass for use in a chemical exhaust hood:

1. That wire glass is unsatisfactory. Furthermore, when wire glass cracks, it allows corrosive action on the exposed wire foundation, which weakens it further.
2. That acrylic resin plastic is the strongest of materials tested but the plastic becomes cloudy upon exposure to heat and, for that reason, is not recommended in this type of installation. However, for individually designed shields, it is recommended above other types because of its resistance to impact and because it is easily fabricated without framework.

3. That $\frac{1}{4}$ inch laminated safety glass be specified in all new general purpose chemical exhaust hoods (the use for which these tests were made) because it will withstand the most impact, produces the least flying glass and is the cheapest.

4. That $\frac{1}{4}$ inch tempered glass not be used as protection for any experimental work where sharp objects are likely to strike the glass with force. This glass is ideal for store fronts and such uses because it will withstand a large impact applied with a rounded object such as a baseball bat or person falling against it. It is more expensive than laminated glass and must be used in sizes as received from the supplier; tempered glass cannot be cut into smaller pieces.

Abstracts

SAFETY AND RELATED FIELDS

All abstracts being published in the *Journal* are supplied by Engineering Index Inc., Engineering Societies Library, 29 W. 39th St., New York 18, N.Y. Because of space limitations, comparatively few of the abstracts from this service can be published in each *Journal* issue. However, subscriptions to the service are available from Engineering Index Inc., which will send, on request, a free 16 page catalog describing the service. For a nominal charge, Index subscribers may obtain copies of any of the articles which have been abstracted and, also, English translations of those published in foreign languages.

ACCIDENT PREVENTION

Analysis of Fatal Accidents in Electric Light and Power Industry in 1958, S. H. Young. *Bulletin of the Edison Electric Institute*, XXVII, No. 7 (July-August, 1959), pp. 275-80. Review and classification of 86 fatal accidents reported during 1958 within the electric light and power industry, compiled by EEI's Accident Prevention Committee from detailed report submitted to the institute; 65 of reported accidents were electric shock and burn cases.

Beware Process Explosion Hazards, R. B. Jacobs, F. H. Blunk, F. W. Scheineman. *Petroleum Refiner*, XXXVIII, No. 9 (September, 1959), pp. 361, 363-4, 367, 369-70, 372, 374. Method of determining explosive situation in plant and damage which may be caused by explosion.

Chemical Process Safety, G. L. Gorbell. American Society of Mechanical Engineers, Paper No. 59-SA-21, for meeting June 14-18, 1959, 4 pp. Chemical process safety as it relates to conditions which sometimes cause serious, and often spectacular, accidents which give the chemical industry undeserved "bad" name; measures to control and eliminate these undesirable conditions.

Color Coding Dies for Safety, W. J. Kirsch. *Tooling and Production*, XXV, No. 7 (October, 1959), pp. 58, 60. At Standard Control Div., Westinghouse Electric Corp., Beaver, Pa., where 140 presses and 6,000 dies are involved in 50,000 die setups per year, effective program for color coding dies was developed which specifies control to be used during operation of each punch press; outline of four general control methods for punch press guarding.

Do-It-Yourself Guarding, A. J. Cobb. *Safety Maintenance*, CXVIII, No. 3 (September, 1959), pp. 10-12.

HOMEMADE GUARDS FOR MACHINERY, fabricated of wood, metal and plastics, designed and used in machine shop of Eastman Kodak Co.

How To Apply Safety to Portable Grinding, D. S. Linton, R. Alchin. *Grinding and Finishing*, V, No. 6 (October, 1959), pp. 46-49. Protective measures for handling of wheels; mountings and flanges; wheel guards; operating safety; maximum operating speed for any mounted point of given shape and size, mandrel size and overhang.

How To Maintain Conductive Floors, J. L. Brenn. *Safety Maintenance*, CXVIII, No. 5 (November, 1959), pp. 17-18. Precautions that can be taken to reduce amount of generated static electricity; use of conductive floor as common ground for grounding strips from metal fixtures and equipment, to equalize electrostatic potential throughout work area; results of tests which showed that only wax and cleaner of electroconductive type should be used in order to maintain floor conductivity.

How To Prevent Maintenance Accidents, W. C. Cooley. *Safety Maintenance*, CXVIII, No. 5 (November, 1959), pp. 12-14. Types of industrial maintenance hazards; program at Missile Systems Div., Lockheed Aircraft Corp., Calif., for safer maintenance, which includes safety training, proper safety equipment and constant supervision; list of safety devices compiled by chief safety engineer of company, applicable to most maintenance operations.

Principles of Machine Guarding. *Safety Maintenance*, CXVIII, No. 4 (October, 1959), pp. 26-31. Discussion of basic hazardous mechanical actions, with typical illustrations of each; chart gives guarding methods, actions and limitations for enclosure, interlocking, au-

tomatic and remote control, placement, feeding and ejecting guards.

Protection of Flammable Liquids. *Safety Maintenance*, CXVIII, No. 3 (September, 1959), pp. 42-43. Rules to minimize fire and other safety hazards of flammable liquids.

Sight Saving in Small Plant. W. L. Roberts. *Safety Maintenance*, CXVIII, No. 5 (November, 1959), pp. 7-9, 14. Outline of program geared to help small plants which do not have equipment or professional personnel for full time vision clinic; as result of study by New York State Optometric Assn., New York State Vision Services Inc. was formed; voluntary nonprofit organization, it sets up administrative machinery through which industrial concerns may contract for services of panel members at predetermined costs and established standards of service.

Unfallschutz bei Glueh- und Schmelzoefen. H. Zepernick. *Metall*, XIII, No. 9 (September, 1959), pp. 850-54. Prevention of accidents with annealing and melting furnaces; description of accidents in operation and of measures taken to prevent recurrence.

Welding Safety "Why's." *Welding Engineer*, XLIV, No. 12 (December, 1959), pp. 29-32. Discussion of following main hazards to which welder usually is exposed: electric shock and burns; radiant energy, and gases, fumes and dust; safety devices, precautions and treatments considered.

INDUSTRIAL HYGIENE

First Aid for Chemical Injuries. J. E. Traynor. *Safety Maintenance*, CXVIII, No. 4 (October, 1959), pp. 34-36, 42-43. Most effective treatment for chemical contamination is water; emergency eye wash fountains discussed include pedestal mounted, wall mounted stainless steel and portable types; drench showers, either multiple nozzle or single head type, may be equipped with eye wash facilities.

Lateral Approach to Tank Ventilation. G. E. Wallin. *Air Engineering*, I, No. 3 (June, 1959), pp. 19-21, 52. Factors governing hood design and fume removal processes are: determining maximum solution temperature and its quality, width and length of net surface, and type of manifold; fume and vapor control from open tank is obtained by proper control velocity for temperature and quality of solution in tank; exhaust rate considerations; "push-pull" system design; data on sizing of exhaust fans.

Techniques for Control of Beryllium Dust. W. B. Harris, A. J. Breslin, M. Eisenbud. *Air Engineering*,

I, No. 5 (August, 1959), pp. 40-42; No. 6 (September, 1959), pp. 41-43; No. 7 (October, 1959), pp. 47-49. Collection and control techniques to determine Beryllium dust concentration in atmosphere surrounding Brush Beryllium Co. plant at Lorain, Ohio, which lead to establishment of outplant maximum allowable concentration; problems and remedial methods used in plant dust control and ventilation test procedures; calculation of maximum allowable concentration

NOISE CONTROL

Foundry Noise Manual. American Foundrymen's Society; 1958; 50 pp. Compensation aspects of loss of hearing; physics of noise; physiological aspects of hearing and hearing loss; medical supervision of workers exposed to noise; measurement of noise; foundry exposures to noise; engineering control of noise; personal protective equipment (ear protectors).

Industrial Noise Manual. American Industrial Hygiene Association, Detroit, Mich.; April, 1958; 184 pp. (\$7.50). Information on physical characteristics of noise, its measurement, its effect on exposed persons and its control.

Statistical Measurement of Factory Noise. G. G. Sacerdote. *Noise Control*, V, No. 6 (November, 1959), pp. 29-31, 53. Noise in factory or other noisy place specified in simple way by giving distribution of three different sound levels; statistics of noise in typewriter factory studied by use of 14 channel computer, and information used to develop simple distribution recording instrument which, in conjunction with sound level meter, gives percentages of time sound level exceeds three preselected values.

NUCLEAR SAFETY

Bases for Establishing Nuclear Safety Criteria. N. Ketzlach. Fifth Nuclear Engineering and Science Conference, Cleveland, 1959; Preprint No. 35; 10 pp. (Published by Engineers Joint Council, New York City.) Method of analysis that may be used to determine nuclear safety of arrays based on mass limitations, mass per unit area limitations for single infinite plane arrays and mass per unit length for arrays in form of cylinders (tube bundles of fuel elements).

Properties of Nuclear Shielding Concrete. J. O. Henrie. *Journal of the American Concrete Institute*, XXXI, No. 1 (July, 1959), pp. 37-46. General shielding requirements with emphasis on fast neutron shields; concrete materials which are effective in meeting requirements; concrete mix, type and source of materials, and strength properties of shields of four similar nuclear reactors are compared; effects on concrete setting time and strength of adding boron in form of mineral colemanite and borocalcite and counter effects of calcium chloride are described.

**chapters of the
american society of
safety engineers**

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Chattanooga, Tennessee

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Cincinnati, Ohio

COLONIAL VIRGINIA
Richmond, Virginia

COLORADO
Denver, Colorado

CONNECTICUT VALLEY
Springfield, Massachusetts

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DELAWARE COUNTY
Media, Pennsylvania

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Knoxville, Tennessee

EASTERN NEW YORK
Albany, New York

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Omaha, Nebraska

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AMERICAN SOCIETY OF SAFETY ENGINEERS

Membership Information

THE American Society of Safety Engineers has established the following classifications of active membership.

ASSOCIATE MEMBER—To be eligible as Associate Member an applicant shall be at least twenty (20) years of age and

- a. Shall have a degree in engineering from a college or university whose curriculum is accredited by the Engineers' Council for Professional Development or shall have legal registration as a professional engineer and, in addition, shall be engaged in safety engineering with at least one (1) year's experience, no time being credited to this one (1) year unless at least fifty (50) per cent of the time was devoted to safety engineering, or shall have supervision over the safety engineering function of his organization; or
- b. Shall have a college degree other than that specified in "a" above and, in addition, shall be engaged in safety engineering with at least three (3) years' experience, no time being credited to this three (3) years unless at least fifty (50) per cent of the time each year was devoted to safety engineering; or
- c. In lieu of a college degree, shall be engaged in safety engineering with at least five (5) years' experience, no time being credited to this five (5) years unless at least fifty (50) per cent of the time each year was devoted to safety engineering.

MEMBER—To be eligible as a Member an applicant shall be at least thirty (30) years of age, shall have the qualifications required for Associate Membership and also shall have (5) years' experience in addition to that required by and of a type defined in the subsection of the requirements for Associate Member which is applicable to him.

FELLOW—To be eligible as a Fellow, a Member shall be nominated upon the unsolicited recommendation of three (3) other Members, shall be at least forty (40) years of age, shall have been a Member for at least thirteen (13) years, and shall have been engaged in safety engineering for at least twenty (20) years, during at least five (5) years of which he shall have been in responsible charge of the safety engineering function of his organization. In addition, he shall have made an outstanding contribution to the safety engineering profession. Recommendations of candidates for the Fellow classification, along with substantiating data, shall be sent to the Secretary of the Society, who shall submit such recommendations and substantiating data to the Committee on Membership. The Committee on Membership shall report its findings to the Executive Committee for action. Fellows shall be elected by a majority vote of the Executive Committee.

AFFILIATE MEMBER—To be eligible as an Affiliate Member an applicant

- a. Shall be at least twenty (20) years of age and shall be engaged in safety engineering with at least one (1) year's experience, no time being credited to this one (1) year unless at least fifty (50) per cent of the time was devoted to safety engineering; he may remain in this classification while qualifying for Associate Member or Member Classification; or
- b. Not being engaged in safety engineering, shall be at least twenty-five (25) years of age and shall have pursuits, attainments in accident prevention, or practical experience, extending over a period of at least three (3) years, which shall qualify him to cooperate with members of the Society and to render service to the Society.

for additional information write to

The American Society of Safety Engineers

5 North Wabash Avenue, Suite 1705

Chicago 2, Illinois

(or contact your local chapter)

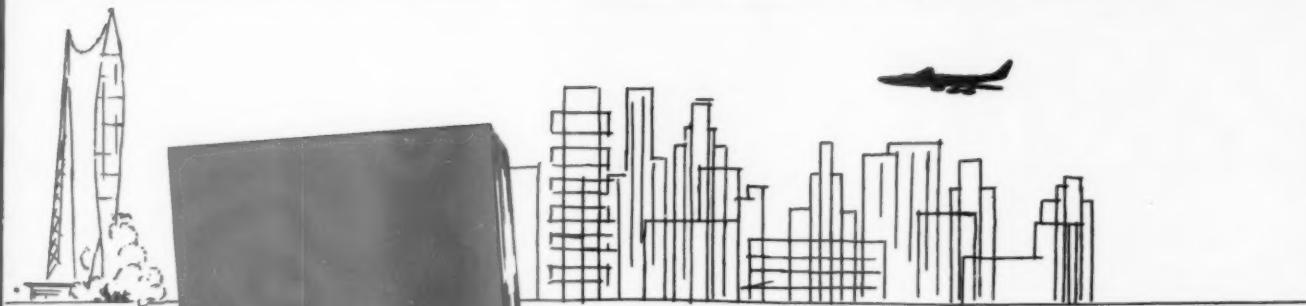
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SAFETY IN THE 60's a provocative, informative book about the future

Now you can get copies of this fascinating book that the National Safety Council originally published as a limited edition. Here's the story behind it:

The theme of last year's National Safety Congress was "Safety in the Sixties." The entire Congress program of chairmen, speakers, and other participants were requested to plan sessions and presentations not only dealing with the here-and-now problems of safety, but to project the problems and needs of accident prevention into the next ten years.

In order to assist Congress participants in the discussion of safety in sixties, the Council asked over 200 authorities—in science, economics, communications, transportation, medicine, civic planning, and other important areas of American life—to comment on overall progress and problems in the sixties.

The material developed from these discussions was published in book form just prior to the 1959 Congress. This limited edition was distributed to participants at the Congress and the original contributors.

Now . . . SAFETY IN THE 60's is available to you. A 200-page book, it contains eight comprehensive sections dealing with population and urban growth, physical and mental health, economic growth, new industrial and consumer products, what "break-throughs" are expected in the physical and biological sciences, and finally, what lies ahead in accident prevention work. Also included are 16 charts forecasting accident experience in industry, home, farm, and traffic in the next ten years.

SAFETY IN THE 60's is not a technical book, nor is it strictly a safety book. It is a book about your life during the next ten years. Certainly no one knows what is going to happen tomorrow, let alone the next ten years, but SAFETY IN THE 60's presents an informative and provocative picture based on the predictions of 200 distinguished leaders in American life.

029.08 SAFETY IN THE 60's Prices (each): 1—\$1.20; 2—\$1.00; 10—\$95.



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POSTER PRICES*

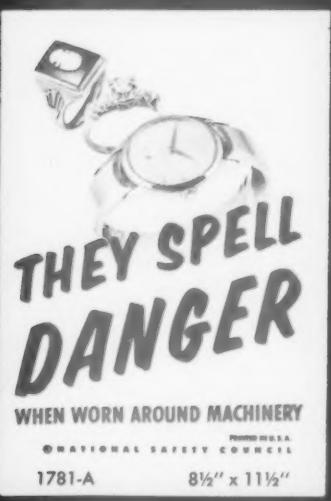
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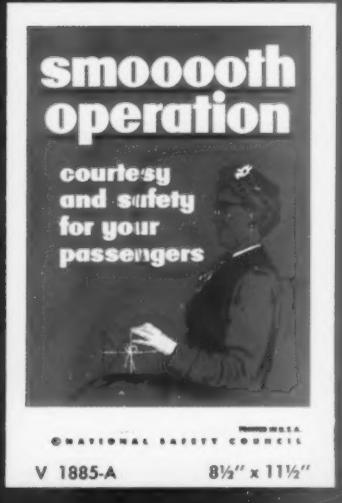
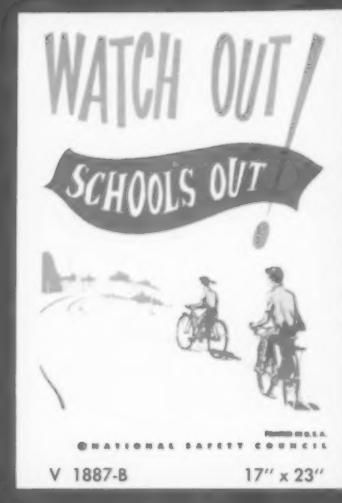
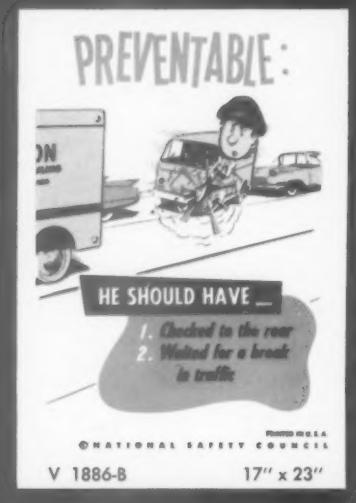
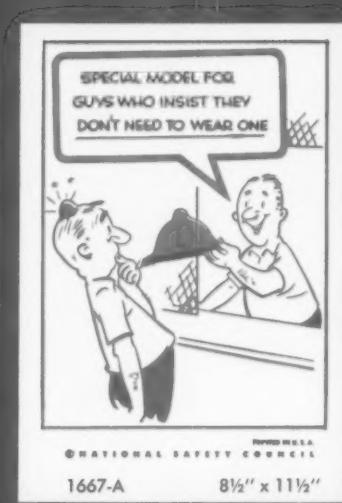
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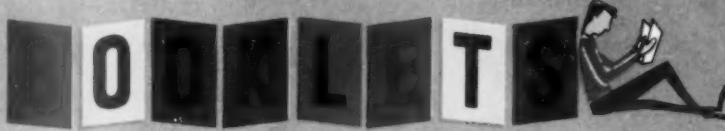
	2	10	100	1,000	5,000
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T-1013	\$10	\$5.50	\$4.95	\$4.95	\$4.95
T-1014	\$7.20	\$4.95	\$4.95	\$4.95	\$4.95

*National Safety Council Members receive 10% discount on these prices. Quantity prices apply only on a single shipment to one location. Please enclose check or cash with orders less than \$25.00. Prices subject to change without notice.





SEND FOR FREE SAMPLE COPIES
OF EMPLOYEE TRAINING



Employee education booklets are a basic part of your safety program. The National Safety Council publishes a wide variety of such booklets designed to shape sound safety attitudes or instruct your employees in the safe practices related to their work or off-the-job activities. Several recent booklets are described below. Sample copies of these booklets may be obtained by circling the code number on the order form or they can be ordered in quantity for prices shown.

SAFETY HINTS FOR THE ELDERLY

A series of four leaflets, Poor Sight, Tire Easily, A Little Shaky and Forget Things, discussing common physical impairments of the aged and suggesting environmental aids and personal practices that will help to prevent accidents. The leaflets are four pages each and are illustrated in full color. The language used requires no more than eighth grade reading skills.

STOCK NO. 599.10—Cost per set: 10—\$.12; 50—\$.11; 500—\$.092; 1000—\$.084.

WHERE DO YOUR KIDS PLAY

A booklet intended to stimulate parent's thinking about the play environment and habits of their school-age children. Each page shows actual photographs of children playing in typical but extremely risky places. The last two pages of the booklet discuss organized and supervised play areas for children. There are eight pages with two-color printing.

STOCK NO. 599.36—Cost per booklet: 50—\$.06; 500—\$.055; 1000—\$.05; 5000—\$.04; 10,000—\$.037; 20,000—\$.035.

ACCIDENTS IN THE OFFICE

Brightly colored and presented in an eye-appealing way, this new booklet will help alert your "white collar" staff to the common hazards found in their occupational environment. "Accidents in the Office" fills a long-felt need. Eight pages, 3 1/4" x 8". Two-color illustrations.

STOCK NO. 195.50—Cost per booklet: 50—\$.06; 500—\$.05; 1000—\$.045; 5000—\$.043; 10,000—\$.042; 20,000—\$.04.

BEFORE IT'S TOO LATE

Dedicated to "all brave firemen who try to arrive before it's too late," this booklet tells the tragic story of home fires and how to prevent them. Real-life pictures taken at the time of a fire help dramatize the message. Twelve pages, 3 1/4" x 8". Two-color photographs and illustrations.

STOCK NO. 599.82—Cost per booklet: 50—\$.07; 500—\$.06; 1000—\$.052; 5000—\$.046; 10,000—\$.042; 20,000—\$.04.

VACATION BOUND

The Council's new booklet on accident problems of people on vacation . . . the "happiest two weeks of the year" that are so often marred by accidents. This year's booklet uses a series of cartoons to illustrate principal vacation hazards—swimming and boating accidents, highway accidents, and accidents around the house. It's a light-hearted booklet that can be read in a minute—just the kind to distribute to vacation-bound employees.

STOCK NO. 194.39—Cost per booklet: 50—\$.07; 500—\$.065; 1000—\$.055; 5000—\$.045; 10,000—\$.042; 20,000—\$.04.

WHO GETS HURT?

"Who Gets Hurt in Industrial Accidents?" is the question asked—and answered by this new, multicolored cartoon booklet. Using a humorous approach, this booklet tells the complete on-the-job injury story in a concise manner. Sixteen pages, 3 1/4" x 8". Full-color illustrations.

STOCK NO. 192.96—Cost per booklet: 50—\$.10; 500—\$.09; 1000—\$.08; 5000—\$.07; 10,000—\$.065; 20,000—\$.055.

A SIMPLE DO-IT-YOURSELF PROJECT

The safety of a worker's fingers—industry's best production tools—is the subject of this booklet. Cartoons and brief copy help remind workers of the do's and don'ts of hand safety. Eight pages 3 1/4" x 8". Two-color illustrations.

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A handsome design bearing the National Safety Council name. Attractively red, green and white emblem for 1 to 40 year awards. Bears the Green Cross and the National Safety Council name with the words: "No-Accident Award," and year number in rose gold. Personalized pins are available. Write for prices.

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Title

Company

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City

State

Planning Open House?

—From page 14

4. Tagging out of all idle equipment so visitors may not endanger themselves or others.

5. Any exhibits which may necessitate the use of dangerous materials, movement of unguarded machine parts, or involve other hazardous operations.

6. Location and size of observation stations as to their nearness to hazardous operations; exposures from flying particles, paint, or heat; and visibility of operation to be demonstrated.

7. Location, legibility, and ease of interpretation of all warning signs, and markers.

8. Placement and stability of rope barriers or other restrictive enclosures.

9. Control of external operations involving all mobile equipment.

10. Provision of suitable comfort facilities including drinking water, rest areas, wash rooms, and toilets.

Assignment of safety personnel. Large-scale open house events usually justify assignment of safety personnel to each building or area. These men serve to maintain established safety precautions and facilitate movements of large groups. Their availability also expedites the provision of first-aid or emergency transportation. Finally, their pres-

ence serves to emphasize the safety consciousness of management toward their employees.

Types of Tours

Characteristics of plant tours vary depending on the location and size of the plant, the nature of the manufacturing process and the type of visitors for whom the tour is planned. Generally, there are five broad categories into which plant tours fall.

The general tour is typical of large plant installations, as steel mills, automobile manufacturers, chemical plants, and oil refineries spread over wide acreage with multiple manufacturing processes ranging from raw materials to finished products.

Only the highlights of the process are shown and explained by guides to give a bird's eye view to the visitor. Emphasis is placed on the scope of plant layout, and in most instances visitors remain in cars or buses throughout the tour, except for one or two stops en route. This type of tour is basically external, and any exposures are related to plant yards, roadways, or railroads.

Usually arranged by invitation only, these general tours may accommodate any type of visitor group—service clubs, educators, professional societies, students, stockholders, or youth groups.

Case in point. An otherwise successful tour of a chemical plant was marred recently by an accident to a group of educators. Following a rigid schedule of four stops, one car out of the group of four was rammed in the rear fender by a yard locomotive. This switching engine backed up into the car as it was crossing an unprotected area and almost upset the vehicle and its three occupants.

Luckily, the switcher was traveling at reduced speed, and on first impact the engineer managed to stop the engine before serious damage could be inflicted.

As a result of the mishap, one of the educators suffered a severely wrenched back which required hospitalization. The driver and the other occupants of the automobile were only shaken up.

Standard tour. Also of the general type, these tours are arranged with greater emphasis on operating practices, working conditions, and the company's role in the community. At large plant installations the standard tour is limited to segments of the over-all manufacturing process which show the scope of the company.

While cars or buses may be required, the guided tour can also be completed on foot, depending on the number of processes to be shown. With more frequent station stops than the general tour, the standard tour may be external and internal. As a consequence, the potential accident exposure increases with the frequency of stops.

Case in point. In a Western Pennsylvania steel mill, a group of visitors was being conducted through the rolling mill. Before the guide could act, one of the group was struck in the leg by a piece of metal accidentally released by the overhead electric magnet.

Fate took a hand. Had the visitor been one or two steps forward, the metal substance could have fallen directly on the visitor's head or shoulder. Luckily, he suffered only



Trained guides make plant tours informative and safe.

Which floor absorbent do you want?

*The one that absorbs the most . . .
the one that absorbs the fastest . . .
or one that makes your floors safe?*

The job of a floor absorbent is to correct a hazard . . . not compound it. This is where materials with spectacular speeds and high ratios of absorption frequently fall down.

They pick up liquids, and convert them into slippery muds.

They lose their hardness in use, and become ineffective.

Adding insult to injury, they cake under traffic and can be removed only by laborious scraping.

The explanation is quite simple. These highly absorptive materials are soft and fine in character . . . too soft and fine to provide safety.

Wyandotte ZORB-ALL® meets the true test of safety in a floor absorbent. IT WON'T BREAK DOWN!

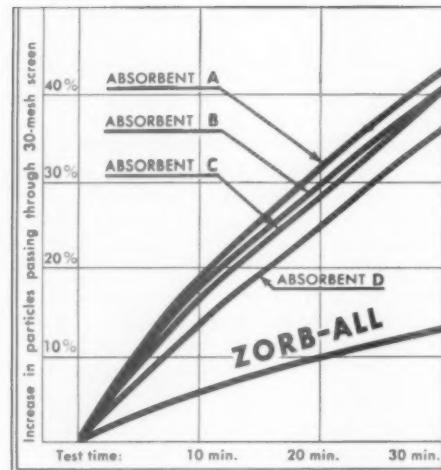
ZORB-ALL is not the fastest floor absorbent on the market. It is the *safest* . . . and we intend to keep it that way.

It stands up best under severe punishment . . . assures non-skid stops when more absorptive materials fail . . . and remains effective nearly twice as long as such materials.

All of this has been proved time and again in laboratory tests, in skid tests with rolling equipment, and in actual use.

Reason: ZORB-ALL's rugged, angular particles have unequalled resistance to breakdown. Maximum skid resistance is one benefit. Ease of clean-up is another.

ZORB-ALL is completely safe, and low in cost. Use it wherever slipperiness endangers workers or vehicles. Get the facts from your Wyandotte representative or jobber. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, California; and Atlanta, Georgia. Offices in principal cities.*



Abrasion-crush test results show rate of breakdown for ZORB-ALL and four other leading floor absorbents; give conclusive proof of ZORB-ALL's superior performance.



Wyandotte CHEMICALS

J. B. FORD DIVISION

severe contusions on his shin bone. No broken bones.

The guide was reprimanded for bringing the group too close to a potentially hazardous location.

Special interest tours. Designed for groups interested in specific operations, these tours are limited in scope, being confined to only one or two locations in the plant premises. To satisfy the special interest of a group, these tours do not follow an established pattern. They must, of necessity, be carefully planned to fit the group and the location to be visited.

Special interest tours are usually arranged in response to requests from such groups as engineers, science teachers, suppliers, graduate students, technical press, and other technical people. Transportation to the point of interest may require buses or automobiles, but the majority of the time spent on the tour is on foot.

Since the specific operation is usually explained in detail by a guide, the visiting group is given a close-up which requires proximity to the men, machines, and materials necessary to the operation. The possibility of accident exposures may be great, depending on the inherent hazards and physical environment of the manufacturing, testing, or experimental process being reviewed.

Case in point. An inquisitive science major from one of our leading universities was one of a group of postgraduate students invited to attend the new testing facilities in a well-equipped laboratory on the West Coast.

Taken in by the serious and technical aspects of the process, he decided to investigate the involved and complicated structures. Without realizing it, he brushed against a glass beaker, knocking it to the floor. The impact spewed glass and a strong, pungent vapor.

Fast action on the part of the guide and other students prevented serious injury to the group. A sprinkler alarm was activated to drench the area with a fine water mist which dissipated the rising cloud of vapor. The offending youth was then dragged to safety with minor leg wounds inflicted by flying glass.

The vapor did not cause any damage other than to make the visitors violently ill for a few hours. After treatment in the company's infirmary, all were released.

Departmental open house. The highly departmentalized structure of large corporations often require that "family day," intended for employees, their families and friends, be carried out as separate department events.

Normally, department production is suspended or at least modified during a family day open house. Nevertheless, potential exposure to accidents may exist and require safeguarding.

Since the main purpose of the department open house is to stress labor-management relations and improve morale, an atmosphere of relaxed informality exists and restrictions on visitor movements are less stringent. In many cases, the employee serves as a guide for his family or friends. Any combination or uncontrolled movement and hazardous locations may be conducive to a serious accident which could defeat the morale-building intent of the open house.

Case in point. James Coxe, as proud of his huge boring mill as of his family, took his youngsters on a special tour of his department during the firm's third annual "family day."

The oldest boy, not quite 15 and dreaming of becoming an expert machinist, decided to "see how the thing works."

Without knowing it, he stepped into a tiny stream of leaking coolant

and became grounded when he touched a cord extending to a portable electric light. In this instance, the boy did not survive the initial shock of the 115-volt ac supply.

Improper maintenance in allowing the leak to be overlooked and not testing the poorly connected portable caused the accident. The tragedy could have been avoided, had proper precautions been exercised prior to the open house event.

Plant open houses, often extending over a period of several days, are usually large-scale events with thousands of visitors. The opening of a plant to the general public generally coincides with special community events, a company anniversary, launching of a new location, or some other industrial milestone. For many companies, plant open house events are an annual affair, based on such themes as growth, leadership, and community services.

Over-all planning may cover plant layout, transportation and parking, selection and training of guides, reception procedures, exhibits, safety and housekeeping, production planning, refreshments, and promotion.

The more comprehensive the open house, the greater is the need for careful preplanning and detailed execution, since all plant facilities would be strained to capacity. Any operation or location which appears hazardous to visitors demands primary consideration and application of accident prevention measures.

Case in point. Milling in the crowd of visitors to the opening of their new multistory industrial plant was Arthur Gordon and his family.

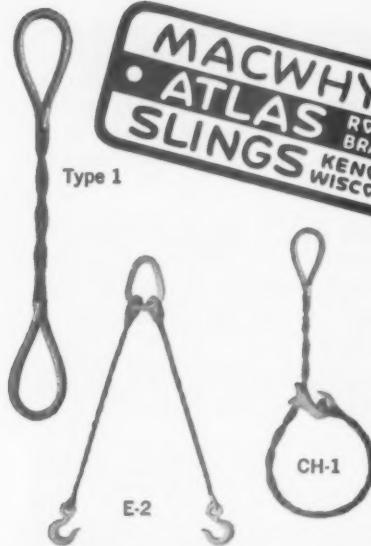
In the rush of completing the building for the open house and getting into production, the manufacturer overlooked a bit of housekeeping. Grease and oil stains in stairwells had not been cleaned up.

When the family group, detached from the crowd, decided to tour the plant, they walked up the stairs. Running ahead, Arthur's son skidded on the grease spot, landed hard on the concrete floor, ripped a hole in his suit, and banged his head against the wall.

Not seriously injured, the boy was carried to the nearest first-aid station where the company doctor sewed up the head wound.

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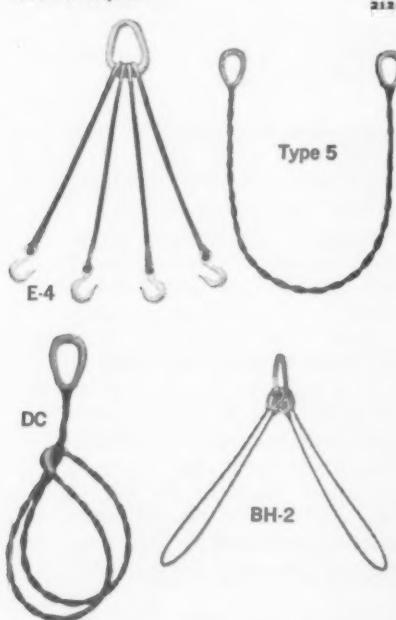


You get a wide choice of sizes, types, and fittings!

Pictured here are just a few of the many types of braided Atlas Slings readily available from Macwhyte. You can order standard designs from the Macwhyte Sling Catalog, or Macwhyte engineers will design slings to meet your special loadlifting requirements.

The eight-part Atlas Sling is made by custom braiding two endless Monarch Whyte Strand wire ropes — one right lay and one left lay. This produces an unusually flexible, light-weight, perfectly balanced sling in which all ropes react the same under load.

The Macwhyte Atlas Sling hugs the load with a safe, full-grip contact . . . and the braided construction resists kinking and speeds handling. Ask for sling circular 5308, free on request.



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These isolated cases point up the necessity for careful planning for the protection of all non-employees while on the premises.

Parking Facilities

Normally, parking facilities at an industrial plant are designed to accommodate employee vehicles, with minor provisions for salesmen, servicing engineers, employment applicants, and other visitors.

The capacity of plant parking facilities is, in most instances, used to a point of saturation, particularly when there are overlapping shifts. To accommodate the additional parking demand created by tour or open house visitors, management must make special arrangements to control and park visitor cars.

Reserved parking. Depending on the type of tour, its duration, and the number of visitors anticipated, it is possible to establish a reserved parking area for those arriving by car. The number of parking spaces required should approximate the number of tour invitations or requests.

If it can be arranged, any parking area reserved for tour or open house visitors should be as close to the reception building as possible. This proximity will reduce the amount of guide signs required and will minimize the distance visitors will have to travel on foot.

Guide or information signs, leading to reserved parking areas and to the reception building, should be legible and distinctive enough to encourage compliance and eliminate confusion.

Parking stalls should be arranged to provide maximum free circulation and ease of parking in lot areas. Surface irregularities, ice and snow accumulations, and other tripping hazards should be corrected to prevent falls and other accidents.

When buses are the major means of transportation for visitors, sufficient space for off-street standby and turning maneuvers is necessary. Ideally, the visitor should be unloaded at the entrance of the reception building and his movements carefully supervised to eliminate pedestrian crossing conflicts.

Guard and police control. Parking facilities may be so located and

arranged as to require plant protection guards to direct parking in the lots. This type of direction would be especially important after completion of a tour or open house to eliminate congestion due to mass exodus from the lots.

On public streets adjacent to plant premises which serve as major approach and department points, police control may be necessary at entrances and exits. Community police are preferred for directing the traffic outside the plant.

Because of their limited authority company guards are best confined to protecting cars in the parking lots and directing traffic at danger points in the plant, as at railroad crossings.

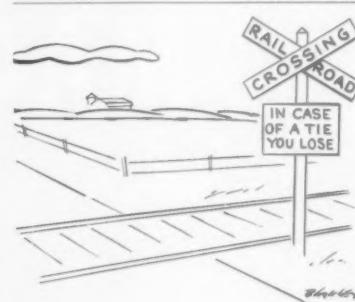
Scheduled parking. Some plants pressed for parking space may schedule their tours to avoid conflict with plant employee shift changes. The hours of 9 a.m. to 11 a.m. and/or 12:30 p.m. to 2:30 p.m. usually permit visitors to arrive, tour, and depart before release of the main shift or arrival of the second shift. Visitors are thus able to use the parking area usually reserved for the second shift.

Open house events involving large numbers of visitors are often scheduled for evenings or weekends to permit maximum use of parking facilities. A skeleton shift can perform any operations to be viewed by the public.

Assembly of Visitors

Some form of initial assembly should be made of plant visitors for identification, tour instruction, and group formation. If possible, the assembly or reception location should serve as the final stop of the tour to check out all visitors.

Identification. On arrival at the reception center, each visitor should be required to sign his name



and arrival time and be given a badge or other visible identification. This procedure provides an exact count of visitors to the plant and permits ease of contact in case of personal calls or other urgent matters.

Rules and protection. Instructions to visitors may vary from illustrated brochures to simple mimeographed sheets. The important consideration is that, whatever the form of the instructions, they should include specific information necessary to safeguard the visitor. Such regulations should be given verbal emphasis. Rules and regulations may include:

1. Stay with your guide at all times.
2. (Please) do not handle any machines or products.
3. Stay away from elevators.
4. No smoking except in areas designated by your guide.
5. Other rules required by the local situation.

In addition to specific safety rules, it may be necessary to advise visitors of first aid availability, lost and found, and emergency procedures.

Wherever hazardous operations make it necessary, or plant and/or departmental regulations require their use, personal protective equipment should be issued preferably at the beginning of the tour. Such protection may include goggles, hard hats, gloves, respirators, clothing, footwear, or other gear. Instructions on the use of this equipment should be given when issued. Guides should be required to enforce their use when and as needed.

Assignment by groups. The usual procedure on plant tours is to assign a maximum of from 8 to 10 visitors to one guide.

Most plants, in their tour invitations, establish a minimum age for guests. In the event such a restriction has been overlooked, or minors are unintentionally present, special consideration should be given to handling them. If the layout of the tour involves considerable exposure or attraction to hazard, it is the best policy to exclude children under high school age from the tour. A center for children can be established, using volunteer workers (from female employees). Another alter-



View of the city of San Juan, Puerto Rico

NEW UNDERSEA TELEPHONE CABLE TO PUERTO RICO AIDS DEFENSE

In addition to its social and business usefulness, the new submarine telephone cable opened recently to Puerto Rico benefits the nation's defense efforts as well.

For it provides a dependable communications link for military and civilian use between the mainland and an important territory.

This new cable is the deepest telephone cable in the world, at one point dropping to a depth of five miles below the ocean's surface. The cable project was undertaken jointly by the Long Lines Department of American Telephone and Telegraph Company and the Radio

Corporation of Puerto Rico, a subsidiary of International Telephone & Telegraph Corp.

The Puerto Rican telephone cable joins many others laid in the past few years—to Hawaii, Alaska, England and Europe—and provides another element of the world-wide communications network we are helping to develop for both civilian and military use.



BELL TELEPHONE SYSTEM

native is to conduct an alternate tour, exclusively for children, which bypasses all hazardous operations or locations.

Tour Route

The scope and direction of a tour route is dependent on such factors as the purpose for which the tour is designed, type of visitors to be guided, the size of operations, time available, and other factors.

Sequence and timing. At most industrial plants, a standard tour follows a logical order of production flow from beginning to end. The flow may create a route through more than one building floor. It is a step-by-step procedure, and the layout of the route is relatively simple.

In large-scale industries, such as steel or chemical mills, each operation may be a separate production flow contained in its own building or group of buildings. A tour layout, designed to review a number of such self-contained operations, may be extensive and complicated.

The prime point with regard to layout of a tour is that the distance to be traversed represents continuous movement. A minimum of backtracking, cutting through or overlapping is important.

After large groups are broken down to 8 or 10 visitors per guide, they should be dispatched at selected intervals from the starting point. This permits spacing of the smaller groups and eliminates congestion and bottlenecks which could lead to confusion and misdirection, and general loss of control.

Signs and markings. It is possible to limit considerably the movements of large groups through use of strategically located signs, floor markings, and barriers. When tours are conducted with small groups at spaced intervals, less use is required of directional control devices.

The most effective means of establishing a tour route in a plant or department is to set up a rope barrier mounted on portable upright stanchions. Necessary information or guide signs can be mounted on

the stanchions or suspended on the rope. Rope barriers help emphasize the closing off of stairs, elevators, production aisles and hazardous areas.

Water paints or plastic tapes also permit placement of temporary markings, such as arrows, directly on the path of the tour.

Signs intended to warn of smoking, handling of machines or exhibits, and wearing of personal protective equipment should be prominently mounted for maximum visibility. There should be no confusion in the mind of visitors that a specific warning is intended for him.

Observation point. Station stops en route to permit viewing an explanation of an operation should be adequate for the size of the groups handled. The viewing area should be laid out to permit no interference with the operator of the machine, yet provide sufficient visibility for each visitor. The advantage of small groups becomes apparent when frequent station stops are to be made.

No observation point should be established which might prove irritating or objectionable because of noise, odors, grime, or temperature. Elevated platforms or catwalks used to keep visitors clear of dangerous or objectionable operations should conform to accepted standards with respect to floor surface, railings, and stairs.

Plant vehicles. When movement of plant vehicles is necessary adjacent to or across the route of a tour, strict operating rules should be established and enforced. Speeds must be kept down, loads carefully balanced, and pedestrian visitors given the right-of-way.

If the layout of a tour requires visitors in vehicles or on foot to cross railroad main lines, busy intersections or heavily traveled streets and plant roadways, extra precautions are warranted. Plant protection guards or police are most effective at crossing locations.

Every attempt should be made to schedule freight car shifting and commercial vehicle pickup and delivery service before or directly after scheduled tours, if these shipping operations would cause interference or hazard.

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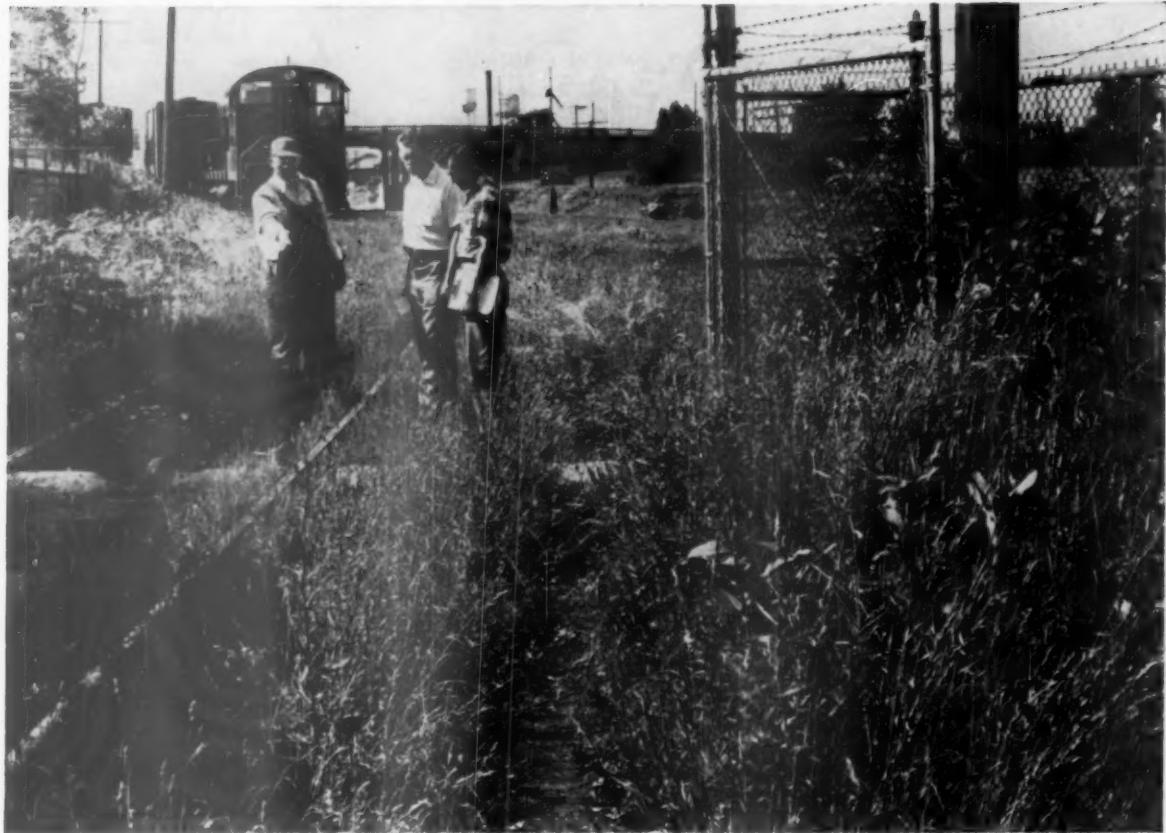
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The modern, low-cost method—spray them away with Garlon. And since Garlon can be applied anytime weeds are growing actively, you can do it at your convenience and spread your maintenance dollar over a longer period.*

Garlon is easy to use, too. Simply add the required amount of water, mix, and you're ready to spray. Your own crews can do the job, or a professional contractor will do it very inexpensively. Spot re-treatment if needed, is just as easy and inexpensive.

It all adds up to lower-cost control of trouble areas like

fences, sidings, storage areas, drainage ditches, parking lots. And the cost gets progressively lower! Once you start a program of chemical vegetation control, you'll find fewer sprayings are required each year to knock out weeds and grasses.

*TRADEMARK



Hand-cutting costs stay
constant from year to year



Chemical maintenance costs
actually diminish each year

For more information on modern chemical vegetation control write: THE DOW CHEMICAL COMPANY, Agricultural Chemicals Sales Dept. 207CX5, Midland, Michigan.

See "The Dow Hour of Great Mysteries" on NBC-TV

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

BRAINSTORMING



for Safety Ideas

By **WILLIAM H. STUBBS**

Training Director, American Box Board Company, Grand Rapids, Mich.

IF YOU CAN'T impress the importance of safety on each individual, your program is doomed to failure. For example, a man who has not been mentally sold on safety will work around a hazardous condition many times a day without seeing it. He isn't safety conscious.

Safety consciousness is a state of mind which will vary with each person. An important part of our job is to develop a favorable state of mind in each individual.

People will buy safety for the same reason they will buy an automobile, a washing machine, or a fur coat. All of us have common desires and needs. It is up to the salesman or safety engineer to find the basic drive and then present his material in such a way as to motivate us in the right direction.

For example, most people have a desire to live and be healthy, so we point out the gruesome results of injuries to sell them on working safely. People also need recognition, so we have awards, dinners, pictures posted, etc. to bring their good safety results to the attention of others. People also like to compete, so we have contests of various kinds so they can demonstrate their ability to others.

Condensed from an address before the Pulp and Paper Section, 47th National Safety Congress.

There are many other approaches which will satisfy individual needs, but the same appeal doesn't necessarily motivate everyone in the same way. For example, some people are extremely proud and their ego is inflated when they are given a hard hat to wear; while on the other hand, some bitterly resent them and complain that they hurt their heads, they are too drafty and cause them to catch cold, and that they cause headaches.

When we analyze our safety program to decide on the best approach to use, we must also consider the many barriers we encounter in trying to motivate each individual. Probably one of the greatest barriers we face, not just from the worker in the plant, but also, I am sorry to say, from many management people, is their negative attitude toward safety. You have all heard remarks like these, indicating this attitude:

"My safety glasses fog up."

"Safety shoes hurt my feet."

"The guard slows me down."

"Safety is a responsibility of the personnel department."

"I told him a good many times not to do that or he might get hurt."

Another barrier we face is the "it can't happen to me" attitude. Still another is the fact that some people like to take chances, gamble—for fun, money, or even with their lives. If you don't think that is true, look at the accidents on our highways.

If we can agree that we are faced with these and many other barriers to the acceptance of ideas to get people to work more safely, what

can we do to overcome these barriers? How can we generate new ideas to make people more safety conscious? How can we think up new gimmicks, stunts, contests, and other ideas to make working safety more attractive?

Brainstorming can be used successfully in this area because it is a method of generating more ideas for the solution to a problem than most other methods.

Brainstorming is an organized approach to securing . . . ideas. The father of this approach to problem-solving is Alex Osborn, co-founder of the firm of Batten, Barton, Durstine, and Osborn, who found the technique very helpful in the advertising business. Brainstorming, or creative thinking, is an organized approach which forces us to use our ability to come up with new ideas.

The notion once persisted that if you weren't born with this creative ability you would never acquire it—something like the ability to wiggle your ears. Some had it and some didn't, but there is plenty of evidence today to the contrary.

It is generally agreed today that most people have, to some degree, the ability to be creative, but most of us, unfortunately, have buried this ability under layer upon layer of judgment. We have a tendency to bury our creative ability because society has placed a definite value on judgment and we want to be rewarded for our ability to make decisions.

The ability to analyze and make decisions is very necessary, but we

—To page 145

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Circle Item No. 41—Reader Service Card

PERSONALS

News of people in safety and related activities

HAROLD J. HOLMES has been appointed director of the Church Safety Activities Division of the National Safety Council. He joined the Council staff in 1958 as a district director, and previously worked with the Auto Industries Highway Safety Committee. Mr. Holmes was assistant professor of safety education and aviation education at South Dakota State College.

In his new position, Mr. Holmes will be responsible for maintaining and improving the concept of safety as a moral obligation. He will be working with clergy and laymen of all faiths.

Mr. Holmes formerly served as district director in the Field Service Department. He was assigned to Illinois and Indiana. Holmes joined the NSC staff in 1958.

Much of his past experience has been in working with volunteer citizen groups and officials in states and cities.

He is an officer in the Naval Reserve.

JOHN T. KENNA, former director of religious activities, resigned from the NSC staff at the conclusion of the three-year Prescott grant to establish a religious activities program.

HOWARD M. HUNTINGTON has been appointed general supervisor—industrial safety for International Harvester Company, Chicago. He succeeds John Young who retired recently.

Mr. Huntington began his service with Harvester at the Tractor Works in 1932 after attending Northwestern University and Indiana University. In 1945 he became assistant plant safety supervisor at Tractor Works. During the same year he became works safety supervisor, a post which he held until 1954 when he was transferred to the general office as assistant consultant in industrial safety under Mr. Young.



Harold J. Holmes

DALE J. HOWARD and **DR. JOHN H. PROCTOR** have been promoted to new positions with the Bleached Board Division of West Virginia Pulp and Paper, Covington, Va.

Mr. Howard has been appointed safety director for the division. Starting with the company in 1946 as a digester helper in the Charleston, S. C. mill, he left to enter the University of North Carolina. He graduated in 1950 with a bachelor's degree in industrial relations. In 1952 he rejoined Westvaco as job analyst, becoming assistant safety director in 1954.

Dr. Proctor, who becomes director of training and research, came to the company as assistant training director in 1958 following graduation from Purdue University where he earned his master's and doctor's degrees in industrial psychology.

GEORGE MACDONALD, former staff member of the National Safety Council's Industrial Department, has been elected vice-president in charge of all operations of Self Insurers Service Inc., Chicago. The firm specializes in safety, training, legal, and management services.

DR. JOSEPH R. ALBRECHT has been appointed full-time plant physician by Alan Wood Steel Company, Conshohocken, Pa. Dr. Albrecht will report to **DR. W. STUART WATSON**, who becomes company medical director, as part of the newly enlarged medical department.

A graduate of the University of Pittsburgh, where he earned both his BS and MD degrees, Dr. Albrecht has a background of private practice, medical administration, and industrial medicine. Formerly, he was associate medical director of Reading Hospital and also had been director of professional services and associate medical director at Hahnemann Medical College and Hospital of Philadelphia.

N. GILLMOR LONG, M.D., medical director of Lumbermens Mutual Casualty Insurance Company, has been appointed as co-chairman of the Committee on Surgical Practices—International Association of Occupational Health. He also has been made chairman of the Section on Surgery of Trauma of the International College of Surgeons.

E. L. (GENE) NEWMAN, veteran Air Force safety director, has been named safety engineer for the western regions of the U. S. Labor Department's Wage and Hour and Public Contracts Division. He will supervise administration of the safety and health provisions of the Walsh-Healey Public Contracts Act in the states west of the Mississippi River, except for Minnesota. His headquarters will be at Kansas City.

Mr. Newman had been director of safety, Central Air Defense Force, headquartered at Richards-Gebaur Air Force Base, Mo., since 1958. He had previously been safety director for Wright-Patterson Air Force Base, Air Material Force, Europe, and the 18th Air Force, Troop Carrier Command.

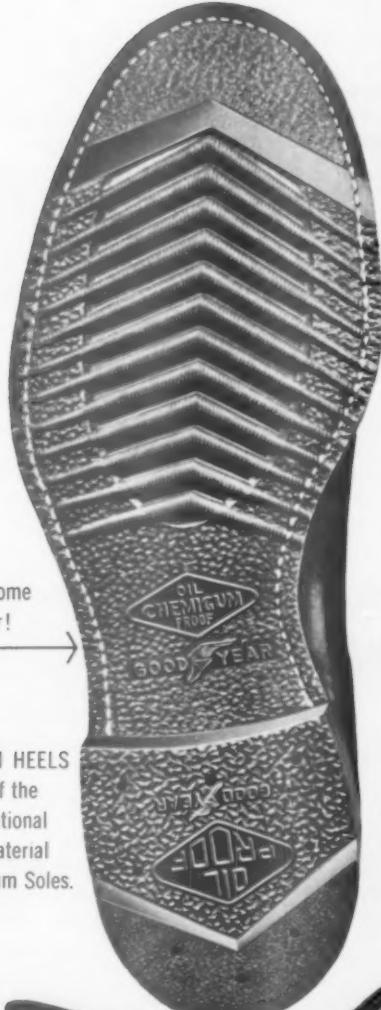
HARLAN VON SEGGERN has joined the Maytag company as safety and plant protection engineer at the firm's wringer washer plant in Newton, Iowa. The post has been vacant since the death of A. M. Countryman last December.

Before coming to Maytag, Mr. —To page 126



SAFETY FIRST

WITH NEW CHEMIGUM OIL PROOF SOLES!



New handsome
amber color!

CHEMIGUM HEELS
are made of the
same sensational
oil proof material
as Chemigum Soles.



The development of this *new CHEMIGUM* makes possible the assurance of new safety for men who work in factories where oil drippings and debris-cluttered floors present underfoot dangers. Here are the facts:

- In a "torture test" comparing Chemigum *Oil Proof* Soles with two competitive "oil resistant" soles used on nationally advertised brands of safety shoes, Chemigum expanded only a small fraction. Brand X swelled 2.17 times as much as Chemigum. Brand Y swelled 2.26 times as much.
- *CHEMIGUM Oil Proof Soles* have an "engineered tread" proved superior for sure-grip, non-slip walking on even the messiest factory floor. *CHEMIGUM Soles* have remarkable resistance to picking up steel shavings and chips.
- *CHEMIGUM Oil Proof Soles* are much lighter than other brands: *CHEMIGUM* has a specific gravity of 1.20 as compared with a specific gravity of 1.40-1.55 for other soling material designed for safety shoes.

Leading manufacturers of all types of safety shoes are replacing old-style soles with these remarkably safer *CHEMIGUM Oil Proof* Soles. Write: Shoe Products Division, Goodyear, Akron 16, Ohio for brand name of shoes illustrated.

Lots of good things come from
GOOD YEAR

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another pioneering product
of GOODYEAR research."



**Calendar Contest
For February**



Herbert F. Peterson of the U.S. Naval Air Station, Alameda, Calif., won the \$100 first prize in the National Safety Council's "Safety Saying" contest with this line:

"Troubles mount BY THE DOZIN' tis said."

The contest appears monthly on the back pages of the Council's calendar. The theme for the February contest was "Stay Alert."

Second prize of \$50 went to Mrs. W. L. Romander (Individual Member), Ogden, Utah. Her entry was:

"Had his eyes in the VAC of his head."

M. J. Landon of Kaiser Steel Corp., Fontana, Calif., won third prize of \$25 for this line:

"Ed was creamed while he dreamed as he sped."

The 30 winners of \$5 prizes are: Otto Hackman (Individual Member), Fort Wayne, Ind.

Bob Walcott (Individual Member), Sherman, Tex.

William P. Watson, EN1, U. S. Navy, S.S. Teaberry, c/o FPO, San Francisco, Calif.

Mrs. A. B. Nicolai (Individual Member), Black River Falls, Wis.

Dwight Haskell, Public Service Co. of Colorado, Monte Vista, Colo.

H. Colby, U. S. Chaircraft Corp., Bloomfield, N. J.

Mrs. Ray McNamara (Individual Member), Shelbyville, Ind.

Mrs. Carl Moore, E. I. duPont de Nemours & Co., Wilmington, Del.

Miss Elizabeth Orchowski (Individual Member), Pittsburgh, Pa.

Mrs. Olivia Grobey, Marhoefer Packing Co., Muncie, Ind.

Deane Fowler (Individual Member), Austin, Tex.

Mrs. Barbara C. Pleger (Individual Member), Marinette, Wis.

Mrs. Emory H. Hall (Individual Member), Mishawaka, Ind.

Mrs. Carl Stark (Individual Member), Empire, Ore.

Robert Parcels, American Brake Shoe Co., Lindsay, Ont., Canada.

Mike Noviscky, Laribee Wire & Equipment Co., Rome, N. Y.

Miss Edna O. Parsons (Individual Member), Kimberly, Ore.

Terry V. Smith, McDougal Livestock Co., Collinsville, Calif.

Mrs. Charles W. Myers, The Poudre Valley National Bank, Fort Collins, Colo.

Miss Bernice Tucker (Individual Member), Kansas City, Mo.

Mrs. Doris E. Bailey (Individual Member), Cambridgeport, Vt.

Mrs. D. W. Swearingen, Allen County Hospital, Iola, Kan.

Mrs. M. G. Ridgway, Hannibal Courier Post, Shelbina, Mo.

Fred L. Payne, Liberty Mutual Insurance Co., San Francisco, Calif.

Mrs. Paulene Young, Corn Products Co., North Kansas City, Mo.

Clyde Campbell, E. I. duPont de Nemours & Co., Victoria, Tex.

Mrs. William L. Ryan (Individual Member), Cyclone, Pa.

Mrs. Shirley H. Wilson (Individual Member), Thornton, Colo.

L. J. Burke, State Department of Health, Seattle, Wash.

Mrs. Ray Mellies, Shell Oil Co., Woodriver, Ill.

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supply in
one second
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in 10 seconds

Just a glance at a Crystal dispenser tells you how many tablets remain . . . you can see right through the clear plastic! If the dispenser is empty, simply slide it off and slide a new one on. That's right! No prying off lids, or shaking dispensers, or searching for keys, or digging out tablets to pour in. Crystals cost so little you are quickly dollars ahead by discarding the old dispensers.

All tablets are sealed in at the factory for maximum cleanliness. To put a tablet in your hand, simply push the easy-to-work, single action mechanism and out it comes.

Your choice of enteric coated or impregnated tablets in 500 or 1000 tablet size Crystals.

For \$7.92 you can order a trial case of six dispensers, each containing 500 tablets. (For impregnated tablets use number FCE6-10RS. For enteric coated tablets use number FCE6-10ES.)

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THEY COULDN'T TURN BACK...THEY WOULDN'T GIVE UP

Wausau Story

in ESCANABA

ON MICHIGAN'S UPPER PENINSULA

by **HENRY HARNISCHFEGER** President,
the Harnischfeger Corporation, Milwaukee, Wisconsin



"Back in 1852, lumberjacks took over Michigan's Upper Peninsula . . . and for years the logs they took out of the huge pine forests kept Escanaba busy and thriving. But with the local economy based on natural resources alone, there was no diversification, no chance for expansion. The depletion and diversion of the natural resources seemed to mark an end to the town's prosperity and progress.

"Escanaba people wouldn't have it that way. They had too much drive and pride to give up easily. They went looking for industry to keep their town from fading away.

"Our company liked that spirit. We saw an opportunity in the cooperation and encouragement the community offered. So in 1947 we started building welding machines there, hiring 13 men. It wasn't more than a year later

that we were making plans to build a plant to produce excavators and truck cranes. Now we've got three plants in Escanaba with over a thousand employees on our payroll.

"We've never been sorry that we chose Escanaba for these new operations. This is a great place to be in business . . . and we've got some great people here to do business with, including the insurance people, Employers Mutuals of Wausau. We find their help is valuable and efficient . . . and there's a personal interest we appreciate."

Thank you, Mr. Harnischfeger. We think you'll be interested to know that almost half of Escanaba's small businesses and retail stores are Employers Mutuals' policyholders too. It isn't the size of the business that counts with us. Big or small, we do take a personal interest in that business. That's the Wausau Way of working.

Employers Mutuals of Wausau has offices all across the country. We write all forms of fire, group and casualty insurance (including automobile). We are one of the largest in the field of workmen's compensation. Consult your telephone directory for the nearest Wausau Man or write us in Wausau, Wisconsin.



At Birds Eye Veneer Company, an Employers Mutuals' policyholder for over 25 years, there's a continuation of Escanaba's original woodworking industry. Here men push the huge

hardwood logs into the boiling vats where they are "cooked" in 180 degree water. Then the logs are "unravelled" to form choice and beautiful veneer for fine furniture.

For the 400 guests of Escanaba's celebration, Pat Hayes—chef and owner of the celebrated House of Ludington—prepares dinner . . . whole pheasants served on flaming swords.



Ornamental iron work is turned out at the forge of the Crooked Iron Works, one of Escanaba's 27 smaller but thriving manufacturers. Employers Mutuals is proud to serve as insurance carrier for many of these businesses.



"Good people to do business with"

Employers Mutuals of Wausau

Personals

—From page 122

Von Seggern was plant manager of training for National Gypsum Company, Fort Dodge, Iowa, where he also served as personnel and safety supervisor. Previously he was chief safety engineer for National Gypsum at Wahoo, Neb. He has also been a physical science teacher at high schools in Sioux City and Mondamin, Iowa.

Mr. Von Seggern attended schools

in Scribner, Neb., and is a 1948 graduate of Nebraska State College, Wayne, receiving a B.S. degree in physical science.

BRYCE B. REEVE, M.D., medical director for Standard Oil Company (Indiana), retired March 28. He had joined Standard in 1923 at the Whiting, Ind., refinery and became medical director in 1934, with headquarters in the general office in Chicago.

GILBEART H. COLLINGS, JR.,

M.D., who succeeds Dr. Reeve, came to the company in 1959 after 20 years of practice in occupational medicine, including service with Bethlehem Steel Company, Tennessee Valley Authority, and Crane Company. He also served with the U. S. Army Medical Corps at the Army Environmental Health Laboratory, Army Medical Center, Md.

Dr. Collings was born in Clemson, S. C., and received his medical degree from Emory University. He took graduate work in occupational medicine at Johns Hopkins.

He is a fellow of the Industrial Medical Association, American Public Health Association, and American Academy of Occupational Medicine, and a former director of the American Industrial Hygiene Association.

He is author of numerous publications on occupational health and now serves as a consultant to the Surgeon General of the Army in occupational health. He is also medical advisor to the National Safety Council.



Weeds and brush + a spark = FIRE!

**BE SAFE! CLEAN OUT WEEDS
AND BRUSH IN PLANT AREAS**

with UROX® Weed Killer

Weeds and brush are a constant fire hazard. A spark... a discarded lit cigarette... a match carelessly flipped into dried-out vegetation—could ignite a whole plant! So don't take chances... do what hundreds of major industrial plants do every year. Wipe out weeds and brush with Urox Weed Killer! Here's why it pays to use Urox Weed Killer for this vital safety job:

Just one application prevents growth of weeds and brush for as long as 8 to 18 months! And because the effects of Urox Weed Killer are cumulative, you'll need to use less for later applications. Cumulative effectiveness means cumulative savings!

For tough, deep-rooted brush and weed trees, use Urab®—Allied Chemical's powerful new herbicide with unique soil penetrating action! Because it goes straight down, Urab Weed Killer

kills troublesome deep roots other herbicides can't reach.

Both Urox and Urab are easier to use! Urox and Urab come in liquid and granular forms. Can be applied quickly and easily with a hand spreader or portable spray equipment.

Send coupon today for free folder on the use of Urox Weed Killer to prevent weed and brush fires.

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Weed Killer Dept.

NB-50

GENERAL CHEMICAL DIVISION

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40 Rector Street, New York 6, N. Y.

Please send free copy of new Urox Weed Killer folder, "Fire! Fire!"

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Title _____

Company _____

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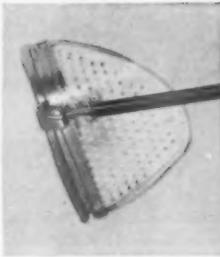
City _____ Zone _____ State _____



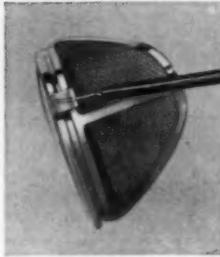
**GENERAL CHEMICAL
DIVISION**
40 Rector St., New York 6, N. Y.



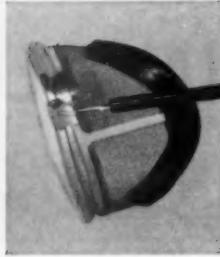
Acetate in clear or green.



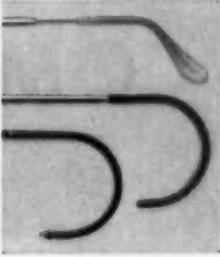
Perforated acetate.



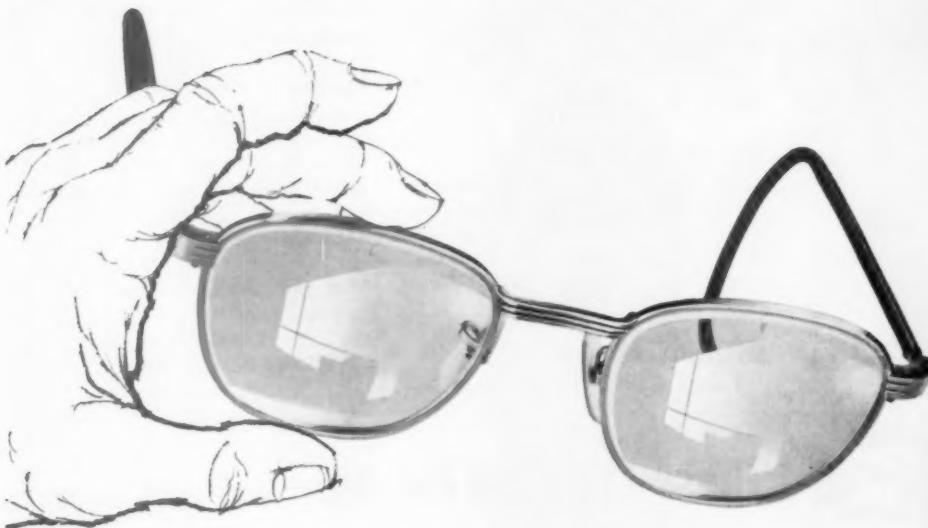
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See how many ways this single sturdy metal safety frame can serve in your plant.

The M-70 features a unique expansion endpiece for quick, easy change-over of temples, side shields and lenses. The same front can be used both with and without side shields, and shields are held firmly as though a permanent part of the frame. This is a real factor in economy.

Engineered for maximum strength, this 18% nickel silver frame offers extreme comfort and—with its neatly engraved bridge and endpieces—imparts a distinct note of modern styling.

Perhaps no other B&L safety frame so lives up to its promise of protection *plus* economy *plus* worker acceptance. To see samples, call your B&L supplier, or write: Bausch & Lomb, 90305 Lomb Park, Rochester 2, New York.



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COMING EVENTS

in safety and related fields



May 2-4, Bethlehem, Pa.

Thirty-third Annual Eastern Pennsylvania Safety Conference (Hotel Bethlehem). Harold A. Seward, secretary-treasurer, Lehigh Valley Safety Council, 602 East Third St., Bethlehem, Pa.

May 4-6, Winston-Salem, N. C.

Thirtieth Annual North Carolina Statewide Industrial Safety Conference (Robert E. Lee Hotel). H. S. Baucom, director of safety, North Carolina Industrial Commission, Raleigh, N. C.

May 5, Watertown, Wis.

Rock River Valley Conference. R. W. Gillette, executive director, Wisconsin Council of Safety, Inc., 1 West Wilson St., Madison, Wis.

May 5-7, Richmond, Va.

Twenty-sixth Annual Conference of the Virginia Safety Association (Hotel John Marshall). Hiram M. Smith, Jr., Virginia Safety Association, 2501 Monument Ave., Richmond 20, Va.

May 12, Seattle, Wash.

Fourth Annual Puget Sound In-

ustrial Safety Conference and Exhibit (Olympic Hotel). Ray A. Norwood, Seattle-King County Safety Council, 304 Spring St., Seattle 4, Wash.

May 17-18, Omaha, Neb.

Executive Committee, Public Utilities Section, NSC (Sheraton-Fontenelle Hotel). E. Dunbar, 929 E St. N.W., Washington, D. C.

May 18-19, Tulsa, Okla.

Twelfth Annual Oklahoma Safety Conference (Mayo Hotel). Bob Eastman, manager, 1600 NW 23, Oklahoma City, Okla.

May 18-20, Cincinnati, Ohio

Fourth Annual Industrial Mutual Aid and Disaster Control Conference (Netherland Hilton Hotel and Evendale Municipal Center). Evendale Mutual Aid, P. O. Box 151, Cincinnati 15, Ohio.

May 19-20, Duluth, Minn.

Thirty-sixth Annual Conference of the Lake Superior Mines Safety Council (Hotel Duluth). Allen D. Look,

—To page 134



Storing and dispensing flammable liquids with Protectoseal Safety Cans is your best insurance against the risk of accident or hazard. Protectoseal Safety Storage and Supply Cans incorporate every known feature—many of them exclusive—to assure safe, efficient control of flammable liquids and vapors.

The difference between a Protectoseal Safety Can and any other safety can is in these features—many of them not apparent from casual inspection.

When you are specifying or buying safety cans, it will pay you to check the "hidden values" you get in Protectoseal Products, because these are the values that make Protectoseal Safety Cans the safer, better buy every time.

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- The one Neoprene Cork Sole that does not compromise wear for weight
- Resist oil, grease, chemicals and acids



BILTRITE NYLON CORD NEOPRENE SOLES

- Rugged — greater abrasion resistance
- Added resistance to oil, grease, acids and chemicals



BILTRITE SURESTEP NEOPRENE SOLES

- Resist oil, grease, chemicals, acids
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BILTRITE SUPER-LITE CORK SOLES

- Resist abrasion from gravel, metal filings, etc.
- Lightweight resilient . . . insulate against heat, cold and shock



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OFF THE JOB

Safety programs for plant and community

By HARRY C. JOHNSON

NSC Staff Representative, OTJ Safety Committee

Off-the-Job Picture for 1959

	Reports	Frequency	Accidents	Fatal	Man-days lost	Employees av/quarter
1st Quarter	132	7.9	8,600	66	156,303	1,160,900
2nd Quarter	105	7.9	7,706	71	127,966	1,037,753
3rd Quarter	94	9.5	8,796	56	186,197	985,554
4th Quarter	171	8.9	10,240	67	181,346	1,232,413
Total			35,342	260	651,812(av)	1,104,155

Frequency of 1959—8.6
Severity of 1959—158.0

Off the Job Summary Quarterly Reports have produced statistics on large and small industries, including those with multi-plant and single operations. Represented are a cross section of types: chemical, steel, pulp and paper, petroleum, communications, public utilities, manufacturing and assembling of component parts, and transportation.

A total of 15,256 home accidents were reported; 9,162 were public accidents; and 10,304 were chargeable to transportation. Although more accidents occurred in the home category, transportation mishaps caused the larger number of deaths.

The Off the Job Committee of the Industrial Conference wishes to increase the reporting of off-the-job injuries. With an increase in Quarterly Summary Reports, it will be possible to obtain worthwhile information on the most prevalent accidents and to concentrate efforts toward reduction of these mishaps.

If you have an off-the-job accident prevention program under way, or if you haven't started your program and are interested (but not reporting your activity), please drop a note to the Off the Job Safety Committee, National Safety Council, 425 N. Michigan Ave., Chicago 11. Report forms will be sent to you free.

drugs, medicines, rugs, steps, toys on floor, electrical outlets, all electrical appliances, bicycles, lawn mowers (all types), ice picks, wheelbarrows, shovels (or any such tool in the hands of a child), skates, axes, ladders, hatchets, knives—kitchen or pocket, flammable materials, glass, drills, nails, wire, all power tools, and automobiles. You could name many more.

With such a large array of hazards, how can we hope to assure safe living for our family? It would be only repetition to repeat here such things as good housekeeping, proper storage of tools and chemicals, proper protective equipment and the many other things which we all know about. Furthermore, most such aids to safety do only a small part of the job of protecting us.

How, then, can we take the big step toward protecting our families? Isn't it a matter of our putting safety considerations first at home, just as we do at work? Isn't it our responsibility to promote the idea of safety with members of our own family? Isn't the well-being of ourselves and our families worth that extra moment of thought and preparation before an act?

Can we answer "no" to any of these questions and still say that we are doing our best to protect our families?

On-Job Safety Applies To Off-Job Family

The importance of placing safety first at home, as on the job, has been well stated by C. I. Williams in a guest column for the March 18 issue of *May Times*, house publication for E. I. du Pont de Nemours & Co. May Plant in Camden, S. C. Mr. Williams' comments follow:

* * *

What would you choose as a specific subject, if you were going to write about family safety?

In asking myself this question and thinking about possible answers, it was soon apparent that there is an almost endless list of hazards to the safety of a family.

Let's list just some of them:

Coming next month . . .

Watch for the big 16-page off-the-job section in next month's NATIONAL SAFETY NEWS . . . a wrap-up of the complex non-work injury problem.

ATTRACTIVE! PROTECTIVE! ADAPTIVE!

THAT'S WATCHEMOKET'S
Rapido
... FASTEST CUSTOM-FIT
SAFETY FRAME IN THE WORLD!

Your employees won't balk at wearing Rapido safety frames. Especially handsome and styled to please the most finicky worker, Rapidos offer maximum protection and comfort. Universal nose bridge and exclusive Retrax Temples adapt them instantly to fit all your workers — enabling you to slash your inventory.

With Rapido you stock only two sizes — 46MM and 48MM — to satisfy all your fitting needs. Spread-end frame accommodates glass, plastic or

prescription lenses . . . with changes made quickly, without heating.

Rapidos are available with or without lenses and with or without side shields.

- Accommodates your present stock of S7 lenses
- Extra deep lens channel for greater safety
- Nylon hinges . . . strong, durable
- Choice of popular frame colors
- Available complete with hardened glass or plastic safety lenses

Write today for Bulletin 459.



1 EXCLUSIVE RETRAX TEMPLES of smooth hook or spatula styles slide in and out for perfect fit on any size face. **2 UNIVERSAL NOSE BRIDGES** fit everybody comfortably . . . eliminating costly fittings, equipment. **3 SPREAD-END FRAME** makes lens changing quick, simple. Takes less than a minute. **4 SIDE SHIELD MODELS** of clear, pink or green transparent plastic . . . with or without ventilation holes in shields.

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Eye and Respiratory Protective Equipment for Safety in Industry

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National Safety News, May, 1960

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- No Screws, Bolts or Nuts Required
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Save time and cut costs. Speedy Marx® are furnished on waterproof vinyl cloth, and comply with ASA, National Safety Council and all Mil.Specs.

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NAMEPLATES • PIPE & ELECTRICAL MARKERS
SAFETY & IDENTIFICATION SIGNS

Name Best Safety Films of 1959

Everywhere . . . All the Time among the winners

Five nontheatrical motion pictures have been honored with bronze plaque awards by the National Committee on Films for Safety as the best safety films of 1959.

Eleven motion pictures, two sound slidefilms and one TV spot series were given Award of Merit certificates.

The safety films committee, which represents 23 national organizations, makes annual awards for films on home, traffic, occupational, and general safety.

John B. McCullough, director of technical services for the Motion Picture Association of America, is chairman of the committee, which seeks to improve the public's knowledge of safety through visual means.

Here are the 1959 award winners:

OCCUPATIONAL

Motion Pictures

PLAQUE: *Cause Undetermined*, produced by Bay State Film Productions for multiple sponsors.

CERTIFICATE: *Communication for Safety*, produced by Cal Dunn Studios for National Safety Council.

CERTIFICATE: *It's Up to You*, produced by Harvest Films for National Society for the Prevention of Blindness.

CERTIFICATE: *A Tale of Two Towns*, produced by Audio Productions for self.

CERTIFICATE: *What Caused the Crash?* produced by Army Pictorial Center for Department of the Army.

TRAFFIC AND TRANSPORTATION

Motion Pictures

PLAQUE: *The ABC of Walking Wisely*, produced by Sid Davis Productions.

PLAQUE: *Nightmare for the Bold*, produced by Atlas Film Corp. for U. S. Air Force.

CERTIFICATE: *Freeway Driving Is Different*, produced by AAA Founda-

tion for Traffic Safety for American Automobile Association.

CERTIFICATE: *Last Clear Chance*, produced by Wondsel, Carlisle & Dunphy for Union Pacific Railroad.

CERTIFICATE: *Driving the Superhighways*, produced by Ford Motor Co. for self.

CERTIFICATE: *Signal 30*, produced by Safety Enterprises, Inc., for self.

CERTIFICATE: *Signs Take a Holiday*, produced by Cal Dunn Studios for National Safety Council.

CERTIFICATE: *You and Your Driving*, produced by Fordel Films for Esso Safety Foundation.

GENERAL

Motion Pictures

PLAQUE: *Outboard Outings*, produced by Aetna Casualty and Surety Co. for self.

PLAQUE: *That They May Live*, produced by Pyramid Film Producers Ltd. for self.

CERTIFICATE: *Everywhere . . . All the Time*, produced by Pilot Productions for Allis-Chalmers Manufacturing Co.

CERTIFICATE: *Rocket Club*, produced by Douglas Productions for Daisy Manufacturing Co.

HOME

Motion Pictures

CERTIFICATE: *The Challenge*, produced by Audio Productions for National Board of Fire Underwriters.

Sound Slidefilm

CERTIFICATE: *The Fable of Freddy Fire*, produced by Filmfax Productions for Hartford Fire Insurance Co.

CERTIFICATE: *Poisons in Your House*, produced by Sidney Pancner for Academy of Medicine of Cleveland.

TV SPORTS AND SHORTS

CERTIFICATE: *Bumper Hugger—Don't Drive When You're Upset—Show-Off—Highway Hypnosis—Jaywalkers*, produced by UPA Pictures for AAA Foundation for Traffic Safety.

"Wide consumer acceptance of neoprene soles helps increase demand for our McCoy work shoe line"



MR. L. J. GEUDER, Vice President
Holland-Racine Shoes, Inc.
Holland, Michigan

"We are convinced," Mr. Geuder states, "that properly designed soles are the prime factor in the sale of work and service type shoes. We find an ever-widening demand and acceptance for neoprene soles in our McCoy work shoe line."

Like other leading shoe manufacturers, Holland-Racine specifies neoprene soles to meet the wide range of working conditions that their McCoy shoes must encounter. The reputation of neoprene soles for quality and performance on the job assures Holland-Racine of customer satisfaction. Neoprene soles are known for their long wear and resistance to oil, grease, acids and chemicals. They also resist abrasion, chipping and cracking—keep their resilience and flexibility in coldest weather.

Put the selling power of Du Pont neoprene to work for you. Specify neoprene soles and heels for *your* work and safety shoes. You'll find them profitable sales tools.

E. I. du Pont de Nemours & Co. (Inc.), Elastomer Chemicals Department NS-5, Wilmington 98, Delaware.



NEOPRENE
SYNTHETIC RUBBER

Better Things for Better Living . . . through Chemistry

D. D. Fennell, NSC Past President, Dies

D. D. FENNELL, for many years a consulting engineer in Chicago and president of the National Safety Council, 1937-38, died March 29 in Kissimmee, Fla.

Mr. Fennell studied mechanical engineering in Germany and Switzerland, majoring in thermodynamics. He was awarded the degrees of M.E. and Ph.D. In 1919 he established a consulting engineering practice in Chicago and became active in the work of the National Safety Council and the Greater Chicago Safety Council.

During World War I he served as production engineer for aircraft manufacturing and later was attached to the Industrial Relations Section on the staff of the Secretary of War. He was special lecturer on engineering subjects at many universities and was the author of numerous papers on management and industrial relations.



D. D. Fennell

He was the Council's vice-president for public relations, 1934-37, and continued as a member of the Board of Directors for several years.

Funeral services were held April 2 at Arlington Heights, Ill., where he had lived before his retirement.

Coming Events

—From page 128

secretary, Lake Superior Mines Safety Council, 321 Federal Bldg., Duluth 2, Minn.

June 7, Bridgeport, Conn.

Fifteenth Annual Statewide Conference of The Connecticut Safety Society (University of Bridgeport). W. W. White, 855 Burnsford Ave., Bridgeport, Conn.

June 9, Rhinelander, Wis.

Wisconsin River Valley Conference. R. W. Gillette, executive director, Wisconsin Council of Safety, Inc., 1 West Wilson St., Madison, Wis.

June 16, Oshkosh, Wis.

Fox River Valley and Lakeshore Conferences, R. W. Gillette, executive director, Wisconsin Council of Safety, Inc., 1 W. Wilson St., Madison, Wis.

June 16-17, Grand Forks, N.D.

Governor's Safety Conference. Floyd J. Upham, Division of Public Safety, State Highway Department, Bismarck, N.D.

June 19-22, Ithaca, N.Y.

Seventh National Conference on Campus Safety (Cornell University). Francis J. Quinlan, Campus Safety Association, c/o Division of Safety, Cornell University, Ithaca, N.Y.

Sept. 15-16, Rockland, Maine.

Thirty-third Annual Maine State Safety Conference (Samoset Hotel). Arthur F. Minchin, secretary, Department of Labor and Industry, State House, Augusta, Maine.

Oct. 17-21, Chicago.

Forty-eighth National Safety Congress and Exposition (Conrad-Hilton Hotel). R. L. Forney, secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

Oct. 26-27, Pittsburgh, Pa.

Twenty-fifth Annual Meeting, Industrial Hygiene Foundation (Mellon Institute). Dr. H. H. Schrenk, managing director, 4400 Fifth Ave., Pittsburgh 13, Pa.

Mar. 14-15, Fort Wayne, Ind.

1961 Northeastern Indiana Safety Conference and Exhibit. Ivan A. Martin, manager, Fort Wayne Safety Council, Chamber of Commerce Building, Fort Wayne, Ind.

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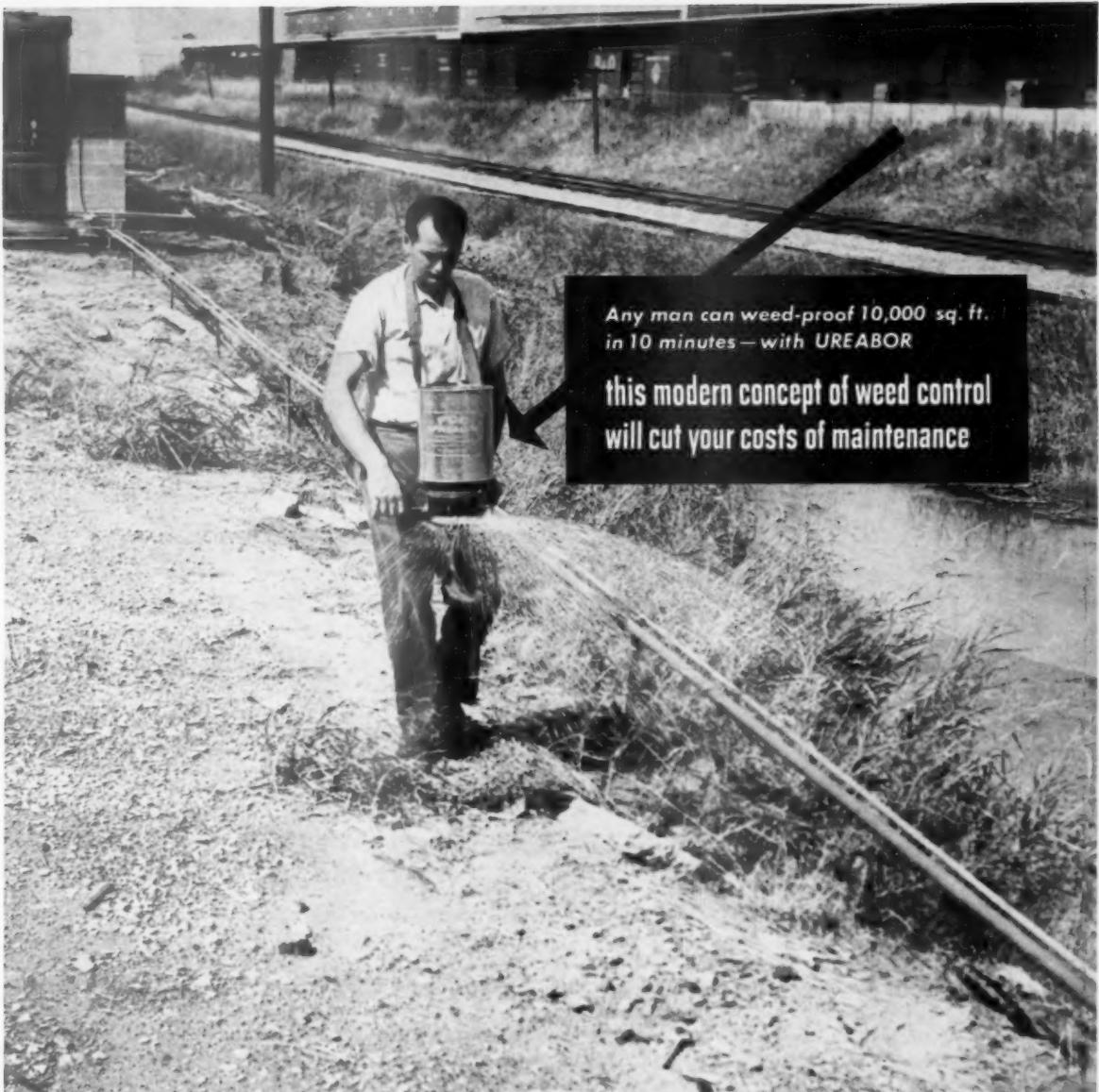
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STREET _____
CITY AND STATE _____

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in 10 minutes — with UREABOR*

**this modern concept of weed control
will cut your costs of maintenance**

-just apply UREABOR® and you can forget about weeds for the season!

Now you can chalk up big savings in weed control! UREABOR weed and grass killer makes this possible. Your own men can apply this dry granular material safely anytime during their regular rounds. One treatment does the job for the year; takes only a few minutes of their time. UREABOR weed killer is always ready to use direct from the convenient 50-lb. sack. There's nothing to mix . . . no water to haul . . . no need for costly spray equipment. And,

because UREABOR is applied DRY, there is no spray-drift hazard to adjacent vegetation. Application rates are low. Only 1 to 2 lbs. per 100 sq. ft. The handy PCB Spreader does the job quickly and easily. (See photo) So, do as scores of other industries are doing . . . start saving time and money on your weed problems with UREABOR. It has been proved safe and effective during the past six years! Write today for literature.

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"Safety Stock" Pays Dividends



AS PART OF a continuous program in the motivation and safety education of employees, Maxwell House Division of General Foods Corporation devised a stimulating contest called "Take Stock in Safety." The contest simulated an actual stock-purchasing and dividend accruing program.

Each plant received various suggestions on how to install a stock board. They were also advised to break down this board into various departments in the plant—with an eye to creating intra-plant competition.

Each time a department worked one week without a disabling injury, it received one share at a par value of 50 cents. As departments built up man-hours, they were given dividends.

For example, 10 cents for the first 1,000 hours worked safely, 25 cents for 10,000 consecutive hours worked safely, 50 cents for 50,000

consecutive hours worked safely, and \$1 for 100,000 consecutive hours worked safely.

It was hoped this system of awards might decrease the possibility of an inequity because of the varying sizes of departments. If a department with 100 employees got 50 cents for a week of safe working, it would certainly have less money to share among its workers than a department with 10 employees. On the other hand, by accruing dividends for man-hours worked, the 100-man department was in a better position to accrue more dividends.

When a department suffered a disabling injury, it found itself penalized one month's stock earnings. This meant that during the month it could not receive any stock or dividends. For instance, if X department suffered a disabling injury on July 29, it would lose all its July earnings and accrued man-hours worked during July.

Blue chip stock. Each time a department works a week without a disabling injury it receives a share of "safety stock," par value. Dividends are based on safe man-hours and distributed as the department wishes. Charities have been the recipients of substantial sums.

Personnel departments in the various plants maintained careful posting of stock earnings. Occasionally, some lively reminders offered throughout the year announced that this program remained in effect.

At the end of this period (July 1, 1958, through June 30, 1959) there was a marked decrease from 6.7 to 2.2 in the average accident frequency rate for all four plants involved in the stock program. Only one plant failed to improve its performance, but in this instance the previous year's frequency was so low that it would be unjust to expect any noticeable improvement.

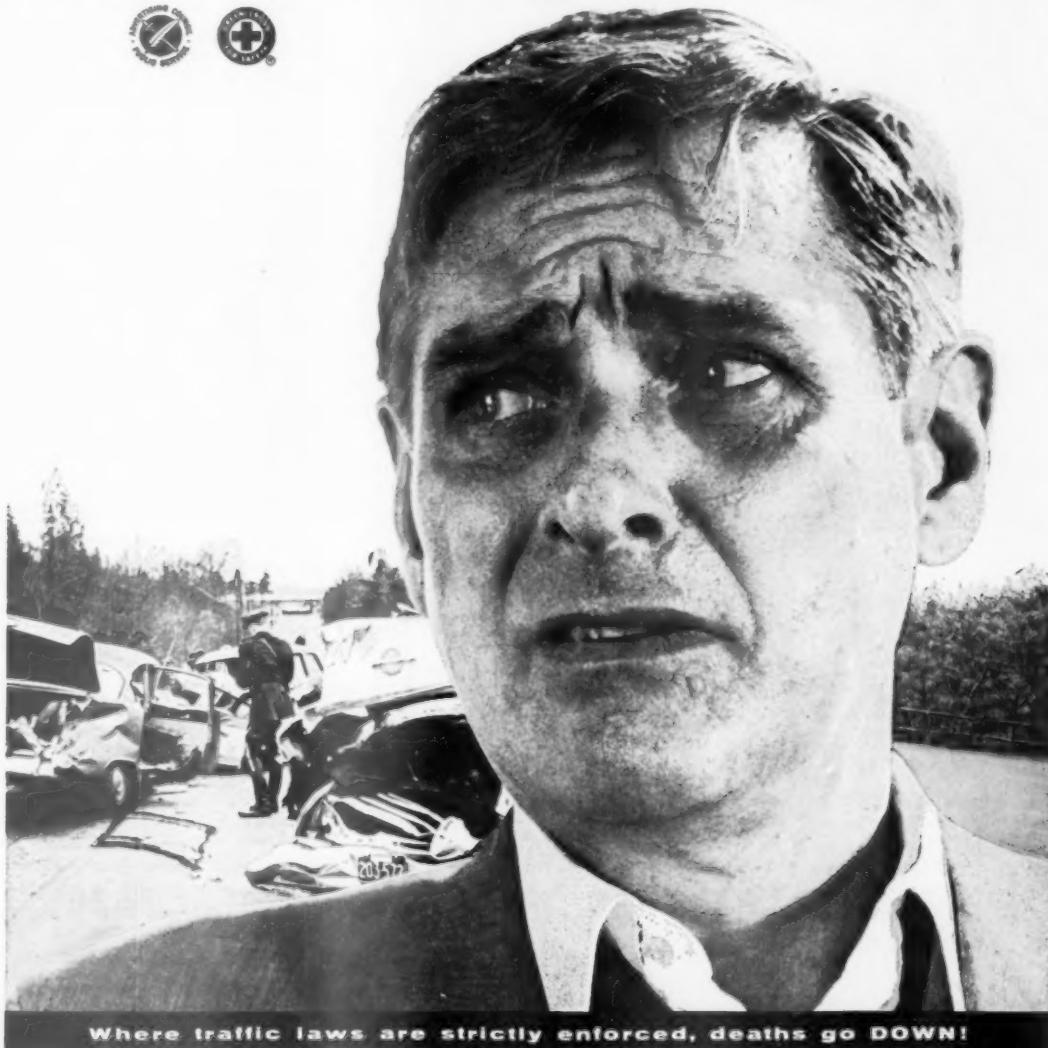
As intra-plant competition continued, inter-plant competition was solicited through an attractive cup-and-drop trophy. Each plant showing either a perfect accident record for one year or improvement in the previous year's performance (July 1, 1957, to June 30, 1958, vs. July 1, 1958, to June 30, 1959) received this attractive trophy—symbolic of the division's "Good to the last drop" slogan.

Money derived from stock accumulation and dividend payments from the 1959-60 program goes to the various departments for disposal as they wish. One plant has donated \$397.25 to its favorite charities: Association for Mentally Retarded Children, Childrens Hospital, and Cerebral Palsy Association.

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Injury Occurrence

—From page 63

the injury rate often rises when there is an influx of new workers and experienced workers are shifted to new processes and activities."

Of interest also, in this regard, is the fact that when the accident rate starts dropping, it begins somewhat ahead of employment slowdown, and conversely as in the 1949-50 cycle, the injury rate increases ahead of the gain in employment.

One reason for this pattern would seem to be that when business slows, the less experienced workers are laid off first and when employment increases as stated above, these same workers are hired back along with even less experienced people who must be trained. No major published study to my knowledge has indicated that intensive safety effort necessarily will alter the seasonal pattern to any great extent, although that certainly is an end to-

ward which we all should work.

However, the huge steel, chemical and auto complexes have fractured seasonal patterns by having no disabling injuries for periods ranging from 8 to 28 million man-hours. When these large multi-plant companies have demonstrated that annual frequencies from .50 to 1.0 are attainable, seasonal patterns become much less important.

Seasonal and business cycle patterns are valuable to federal and state statisticians, insurance company actuaries and, coupled with cause data, to safety council engineers and those with responsibility for the huge multi-plant programs. But the ordinary working safety engineering director would, I feel, be better off to concentrate on eliminating the hazards that can be eliminated, minimizing those which can be minimized, guarding those which are susceptible to neither elimination nor minimizing, training the people who can be trained, and disciplining those who won't be trained. Then I'm sure the ordinary sized company's seasonal patterns will take care of themselves.

Expert advices to suburban gardeners state there are two theories to tree or shrub pruning. One rather technical one is that it should only be done when the plants are dormant, in late fall or winter. The other states "any time the shears are sharp." I'm a sharp shears man myself.

To recap:

1. Seasonal and business cycle patterns in accident frequency rates do exist and have led the way to much valuable and effective injury prevention work. Patterns in the manufacturing injury rate so often quoted may not always be the same as those in other industries.

2. The patterns are fairly sensitive and all-out efforts toward total accident prevention have in several large industries changed them rather markedly.

3. Above all, they should be considered as a challenge rather than as an excuse for complacency.

The over-all effects of many years of safety engineering, safety training and discipline are dramatically emphasized by the steady reductions in both injury and death rates between 1935 and 1959, a period in which employment rose from 42½ million to 60 million. During

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this quarter of a century the occupational injury frequency rate fell from 13.1 to 6.2 according to National Safety Council figures, and the severity rate from 1,500 to 744. Deaths per 100,000 workers dropped from 37 to 22.

There is, however, one major flaw in this rather cheerful picture. Improvement in industries other than manufacturing was not as great. In manufacturing industries fatalities were reduced from a 1936 high of 26 per 100,000 employees to an even 12 for each of the last 5 years of the period, but in non-manufacturing industries the reduction was much less impressive, from a 1937 high of 48 to a 1958 low of 26.

At the same time, the manufacturing industries' share of the labor market increased from less than one-fifth to more than one-fourth. Even last year, 1959, manufacturing accounted for only 1900 of the 13,800 occupational deaths. By comparison there were 3,400 deaths in agriculture which is no longer included in this conference, 2,600 in service areas, including government, 2,500 in construction, 1,300 in transportation, 1,200 in trade and 700 in mining and other related activities. Again, as reported at the President's Conference on Occupational Safety in 1958, the injury rates in manufacturing industries were reduced more than those for "all" workers in the 10-year period 1948 to 1958. Since construction and mining rates also dropped more than the "all" average, it would appear that trades and services, finance, government and transportation were lagging in improvement.

The best job of accident control has been done on the whole by the manufacturing companies. This is also borne out by the tremendous volume of data available on personal injuries in manufacturing industries.

The manufacturing industries well deserve the fine record they have compiled in preventing industrial injuries over the past 15 or 20 years. They have asked for, worked for and practically demanded the tools and attention they have received. However, no comparable emphasis has been placed in other industries, quite possibly through their own fault.

There are data available but vir-

National Safety News, May, 1960

tually no one uses them. United States Bureau of Labor Statistics, National Safety Council and some states publish figures, but even they bestow the diminutive cognomen of "nonmanufacturing industries" on them as if to emphasize that they are the second-class citizens of safety. There is, I believe, ample evidence that in the future the greatest effort should be placed on these nonmanufacturing industries.

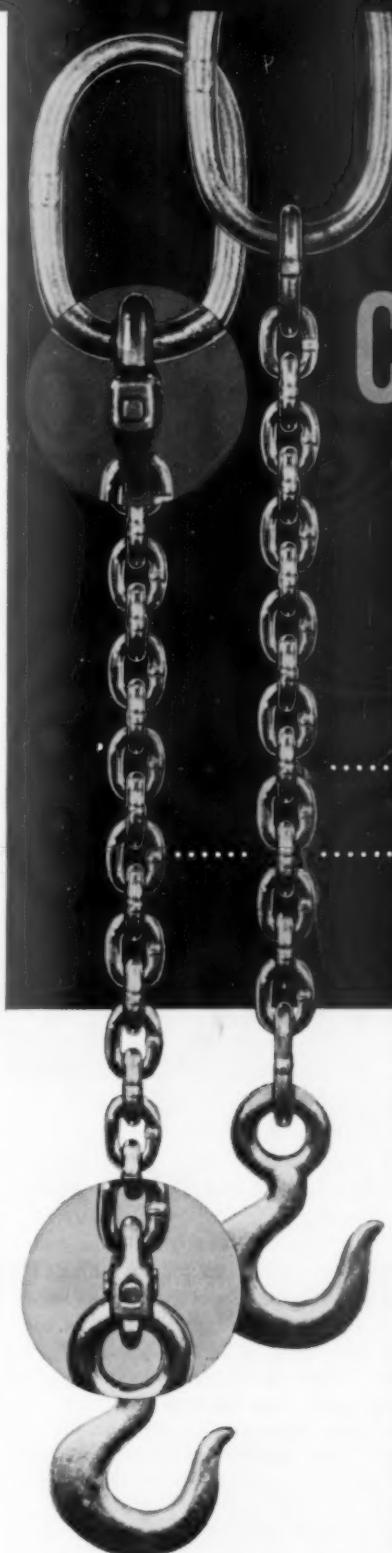
There is need for a further breakdown by type of injury and size of company for injuries in the construction industry, in service industries, in government, in wholesale and retail trade, in finance, insurance and real estate. The same is not quite so true of mining, for compared to the percentage of injuries on the whole, and due to the excellent work of the United States Bureau of Mines, there is a great deal of available data on mining accidents and considerable improvement has been shown. There is a need for sessions at meetings like this, devoted exclusively to these various segments of the "nonmanufacturing" industries.

There is a need for much greater publicity in these "nonmanufacturing" fields. The average chief executive of a city, county or state doesn't believe he has an employee safety problem. He considers that his whole safety obligation lies in control of traffic injuries to his people. The average chief executive of a department store considers safety only in reference to customer injuries on moving stairways or in the store's restaurant.

Since these people sincerely believe they do not have an employee safety problem, then it remains that we as safety engineers, statisticians, and others interested have fallen down in not convincing them. True, the injuries, particularly fatal injuries to employees in these occupations, are less spectacular, less frequent and less publicized than they used to be in manufacturing and mining, but they do occur and it's time something constructive was done about it.

When and if we use the known business patterns in accident rates, publicize them and begin to get some results, then these figures will reach the value and achieve the purpose they formerly did in manufacturing.

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CONSULTATION CORNER



Questions on accident prevention, fire protection and occupational hygiene are answered by mail.
A few are selected for publication

By L. C. SMITH, Industrial Department, NSC

Tag-Out or Lock-Out?

Question: We have numerous pumps, conveyors, and vessels for storage and handling of caustic solutions. For maintenance and repair work we are now using danger tags which conform to the American Standard Code, *Specifications for Industrial Accident Prevention Signs*.

It has been proposed that we use tags of two different colors, one color for minor hazards to personnel and another color where hazards to personnel are high.

Use of standard colors and designs for tags to indicate danger to personnel seems to have a lot of merit. We would like your thinking on this procedure.

Answer: Experience in industry over the years has shown the best way to protect workmen against machine accidents during repairs, maintenance, and adjustments is to lock the main machine controls in the "off" position. This procedure would apply to your operations. However, to be effective it must be used in accordance with a strict safety policy.

It is recommended that each worker use a combination lock or substantial padlock that is tamper-proof and operated by only one type of key. As a means of identification, locks may be painted various colors to indicate types of craft or to signify different shifts.

Each lock should be stamped with the employee's name or clock num-



Locks can save lives.

ber, or a metal tag with the necessary information should be attached to the lock.

Only one key should be issued to the workman for each lock. The supervisor should keep a master list of key numbers and the extra key to each lock in his department. Even though a workman's key seems lost beyond recovery, the supervisor should not loan his key.

In case of emergency, the supervisor should use the extra key. Then the old lock and the extra key should be destroyed or the tumblers changed by a locksmith and two new keys cut to fit.

In using combination locks, only the immediate supervisor, or whoever determines the company's or department's safety policy, should have an extra copy of the combinations.

Each lock must be different from every other lock used by the maintenance group. It is recommended that the company purchase the locks from a reputable lock company with the requirement that no two locks be the same. As an added precaution, check the patterns of the keys.

In large plants where controls may be some distance from the operation under repair, use of tags is extremely important. In this event, it is recommended that tags be attached to the padlocks, naming the department where the work is being done and the person responsible for the repair job. The supervisor will then have the information he needs if he must locate the man or check a specific job.

Where you are using colored tags only, you have two problems that are difficult to overcome. First, tags are easily removed, which could lead to a serious accident. Second, with colored tags you have the additional problem of educating employees to associate hazards with color.

This is difficult to do because of color blindness, shades of colors, and other factors. Also, trying to indicate minor hazards and high hazards may lead employees to hold all tags lightly.

Perhaps a combination of tags and locks would be the best solution, but you are likely to run into trouble if you rely upon tags alone.

Small Business— Associations

From page 58

Top award in the safety program, the H. B. Alexander Award, went to the firm of Ernest DiSabatino & Son, Inc., Wilmington, Del., for having the greatest man-hour exposure with no disabling injuries. The firm reported 459,973 man-hours with no disabling injuries.

Winning contractors and AGC chapters participated in the association's voluntary safety program, designed to reduce accidents in the construction industry. The AGC represents 7,400 construction firms in the United States.

Fifty-four merit awards were presented to contractors with the best safety record for the 12 months ending Sept. 30, 1959, based on frequency and severity of accidents. Nine more merit awards went to AGC chapters having the highest percentage of members co-operating in the accident prevention program and with the lowest member frequency.

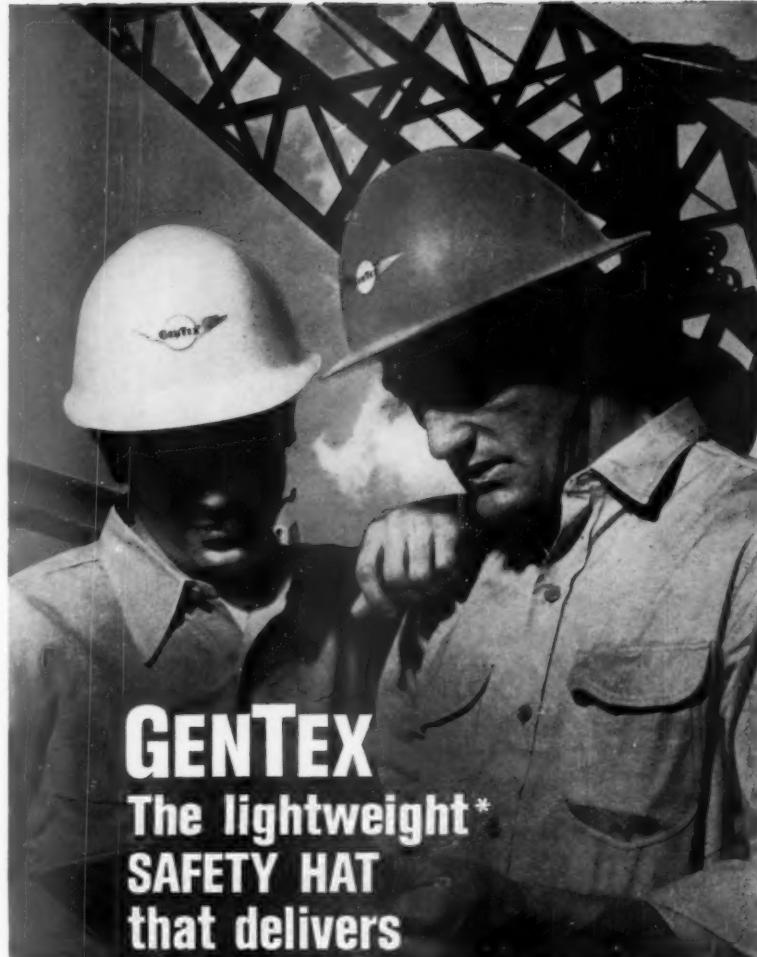
Awards were presented during the 41st Annual Convention of the AGC in San Francisco by Ira H. Hardin of Atlanta, Ga., and chairman of the AGC's Accident Prevention Committee.

Hardin noted the number of contractors to receive commendation certificates is more than 12 per cent higher than in the previous year. He said this increase reflects successful efforts by AGC contractors to voluntarily improve their safety records.

Contractors' Chapter Creates Safety Award

In February 1959 the board of directors of the Wisconsin Chapter, Associated General Contractors, authorized creation of an appropriate award to be presented to the AGC member firm achieving the best annual safety record. Such recognition is to be based on data furnished by the disabling-injury-tabulation reporting method.

Although the contest year began Oct. 1, 1959, and ends Sept. 30, 1960, chapter headquarters in Madison has announced that firms can file retroactively on D-I-T forms. These can be obtained by writing to Wisconsin Chapter-AGC, 119 Monona Ave, Madison, Wis.



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Government Contracts

WASHINGTON, D. C. I read with interest the article by Merrill D. Ely in your February issue: "It's Part of the Contract—Safety Specifications of the Army Engineers are included in all contracts for construction of military buildings."

As author of the only law article dealing with legal problems of safety clauses (Accident Prevention in Labor Provisions of Government Contracts, 16 Fed. B. J. 331, 371-375, July 1956) I am happy to inform your readers that the Department of the Interior has recently issued a uniform "safety clause" for use in all of its construction contracts.

I am sure your readers are familiar with the handbook, *Safety Requirements for Construction by Contract*, of Interior's Bureau of Reclamation. Some of the other Interior bureaus and agencies (e.g. Bureau of Mines) use the *Manual of Accident Prevention in Construction* of Associated General Contractors of America. Finally, I note that the Corps of Engineers Manual has been adopted by many other government construction agencies.

—PAUL H. GANTT, Assistant Solicitor, Branch of Claims and Contract Appeals; Chairman, Interior Board of Appeals.

The President's Conference

WASHINGTON, D. C. Thank you very much for your excellent coverage of the President's Conference on Occupational Safety. We particularly appreciate your running the full text of the "Conference Conclusions."

As you know, one recommendation made repeatedly by delegates was that the conclusions and recommendations be given widest possible distribution. I can think of no better way of getting this to the public than through NATIONAL SAFETY NEWS.

—A. W. MOTLEY, Director
Bureau of Labor Standards
U. S. Department of Labor

Brainstorming

—From page 120

have a tendency to forget that in order to analyze and judge we must first have ideas. There is an opportunity on any job or in any situation for us to be creative.

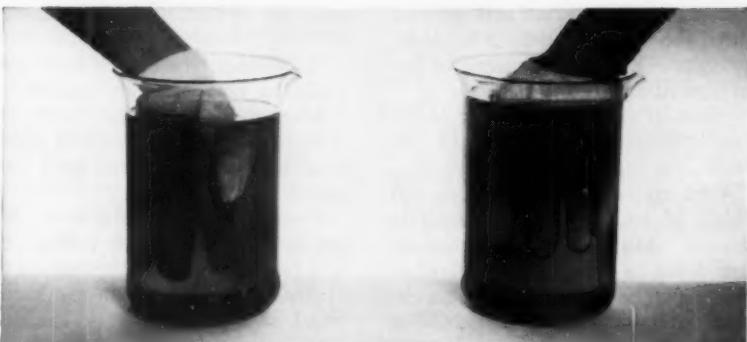
If we are going to be creative and come up with new ideas, how do we go about it? There are two approaches to creative thinking—the organized approach and the free-wheeling approach. In the organized approach, a program of development aimed at improvement in a particular area is spelled out. Small, but important changes are made, step by step, toward those specific goals. Rules and procedures can be applied, such as "state the problem creatively," and "get a multitude of ideas." From these ideas, get solutions by the use of check lists and our best judgment. This approach can be trained.

In the second approach, free-wheeling, we dream big and we think big. It is a thinking process which uses unknowns and then works back to reality. It requires a very free imagination. We also must use careful control over our censoring attitudes and judgment. This approach can also be trained.

For example, let's suppose our group represents an organization manufacturing appliances such as stoves, refrigerators, coffee makers, and toasters. Our competition is causing us some difficulty in our sales of toasters and we have the problem of how to make a better toaster to improve our sales position.

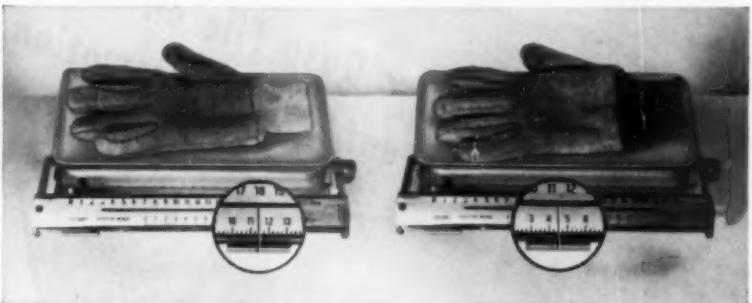
"What can we do to make a better toaster?" A question stated in this way limits ideas, since it confines us to thinking about improving the present product. We would all be thinking of ideas that would make the toaster look better, possibly have a better shape or better design. In some way we would improve the present toaster.

Now let's suppose that we stated the question in a more creative manner. We might say it this way, "As one of the improvements, how can we improve our toaster to keep toast warm?" We have pointed out a particular area for improvement, not in the present toaster, but an addition to the present toaster. This idea, of



Here is an untreated terry cloth glove being soaked in oil.

Here is an oil-repellent Oilmac glove getting the same treatment.



Now we weigh the untreated glove. It is oil soaked and soggy, weighs a full 11 1/2 ounces. Not very comfortable to wear!

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swer! Moreover, new Oilmacs are far more cut resistant than expensive leather gloves . . . can be reconditioned with virtually no loss in oil resistance . . . and are interchangeable, so any two make a pair, any pair gives you four working surfaces. Write today for literature about these new work gloves by Jomac!

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course, has been done and we now have the warming drawer in some toasters. This is an example of the organized approach.

Now let's take an example of the free-wheeling approach. Let's restate our question in this way, "What are some ways that we can think of to brown and dehydrate bread?" After all, that is what we are doing in the present method of toasting. This brings to mind an entirely different field of thought. For

example, we think of some ideas like this:

Some other type of heat treatment (infrared, or some other means).

Some radiation device.

Possibly a knife coated with a material that oxidizes bread after cutting it.

Possibly an additive that we can put in the butter which would oxidize bread when it was spread on it.

An additive to put in the bread which would oxidize it on the sur-

face and brown it when we cut and expose it to air.

Now this is free imagination. No judgment is used at this point. Ideas should flow freely and we would not stop and judge each idea as it was presented.

Another example of the free-wheeling approach to a problem is illustrated by the match. In olden days we started out with the old sulphur match, went to the kitchen match, then because of the danger involved, we did some creative thinking and invented the safety match. Not being satisfied with this new product, someone did some free-wheeling and thought of the paper book match.

But now another problem presented itself. Many people have had some extremely painful burns resulting from an explosion of the matches. Many companies have tried the organized approach to improve their book matches to eliminate this hazard. They have put the abrasive on the back and have always printed on it "Close Cover Before Striking."

I have two examples of the free-wheeling approach which have a tendency to reduce the hazard from burning. On the first packet of matches the cover is stapled shut at the bottom. The cover has two small half circles on the sides which, when removed, allow you to remove the matches from the side and protects the heads of the rest of the matches when you strike one on the cover.

The second example, which is a more recent one, has a cover which opens at the top and snaps shut after you have taken the match out so that the book of matches is completely closed when you strike it. In

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"Pile 'em right, and they won't fall."

both of these instances, someone used some very free-wheeling imagination to arrive at this new paper book.

When we are looking for new ideas, as in these examples, we should create, not judge. Judgment is important, but it has its place. That is after, not during the time that ideas are being sought. Although judgment must eventually play a vital role in the creative process, it is best not to apply judgment simultaneously with the generation of possible ideas. Free-wheeling is desired, then judgment comes later.

Why do some people have difficulty in being creative? In most people there are three types of mental blocks that stand in the way of their being creative: the perceptual blocks, the cultural blocks, and the emotional blocks.

First, some of the perceptual blocks are those that include the thoughts, impressions, and ideas we have that prevent creative thinking, such as the difficulty in isolating the problem (we can't see the forest for the trees), or the difficulty in not investigating the obvious, or over-emphasis on past experience ("it won't work; we tried it before," and that type of negative thinking).

Second, in cultural blocks most people have a desire to conform and don't like to be different from others. It is not polite to be too inquisitive; let's not ask embarrassing questions. We place too much faith in statistics and we have a tendency to achieve perfection, or nothing at all. Also, some of us believe that fantasy is a waste of time.

The third, or emotional blocks, reflect our individual personality traits. For example, the lack of drive in putting a solution to work, the fear of making a mistake or fool of oneself, we are not flexible in our thinking, we hold biased opinions, and we sometimes have the inability to relax.

Now assume we understand these mental blocks that may stand in our way, we have the incentive and the need for new ideas, and the climate is right, how do we get ideas started?

Brainstorming is one of many techniques. You may have a method of your own, but in any case, a prepared or planned program for approaching a problem will be better than a hit-and-miss method of thinking. There are many advantages to

having a planned program, one being that you don't jump for the first idea that comes to mind. Sometimes the 50th idea is much better than the first.

To brainstorm, a panel of not more than 12 members is selected and presented with a carefully worded problem. Then the panel, following certain rules, suggests solutions to that problem.

The rules the panel will follow are:

1. Judicial judgment is out. Don't be reluctant to give your ideas because

you may feel someone may laugh at you. Give only ideas, not criticisms of what may be wrong with the ideas. Don't try to evaluate the ideas at this point.

2. Free-wheeling is desired. The wilder the idea, the better. It is easier to tame down than think up.

3. Quantity is wanted. The greater the number of ideas, the better the chance of getting good ones.

4. Combinations and improvements are sought. In addition to contributing your own ideas, try to improve on the ideas that others give. This we call hitch-hiking.

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Where's the Soap, Mom?

AS A YOUNGSTER, when our language got a little off base and would have shocked the preacher, we can vividly recall (and still taste!) the effective action taken by Mom to straighten us out. That mouth washing with yellow laundry soap got results.

We always think of Mom's approach to the problem when we hear some people talking about this serious business of accident prevention. It seems a lot of slipshod language is being used by those who

should know better. Some of these "dirty" words may indicate fuzzy thinking—and fuzzy thinking can be a breeding nest for accidents.

One of the most basic truisms to come out of the safety movement is that "accidents do not happen—they are caused." Yet how often do you hear people loudly expound on the significance of this fundamental in one breath and then proceed to tell how an accident "happened" in the next breath? It gives us a feeling they are talking out of both corners of their mouths. It is a glaring ex-

ample of failing to practice our own teachings.

And then there is this superficial expression "lost-time accidents." People lose time because of injuries but we can't recall for the life of us when an accident ever lost time. Just listening to those who bandy this expression around, you would think the worst thing resulting from accidents is lost time. A solid thinker, however, can come up with several payoffs much worse. *Disabling injury*—not lost-time accident—is the choice of those who have acquired the big picture perspective on this challenging problem of accident control.

Let the chalk screech across the blackboard and we get a cold chill up and down the spine. Hearing the abominable word "carelessness" does the same thing to us. When you hear a person use this word as the cause of an accident, you are a witness to lazy, fuzzy thinking in all its glory. Those who are sincere about preventing the recurrence of an accident will determine the *real* cause and work from there. This requires some probing and the asking of several questions. The use and acceptance of "carelessness" as a cause, is pure, unadulterated fraud. It gives you nothing to work on. Let's bury it!

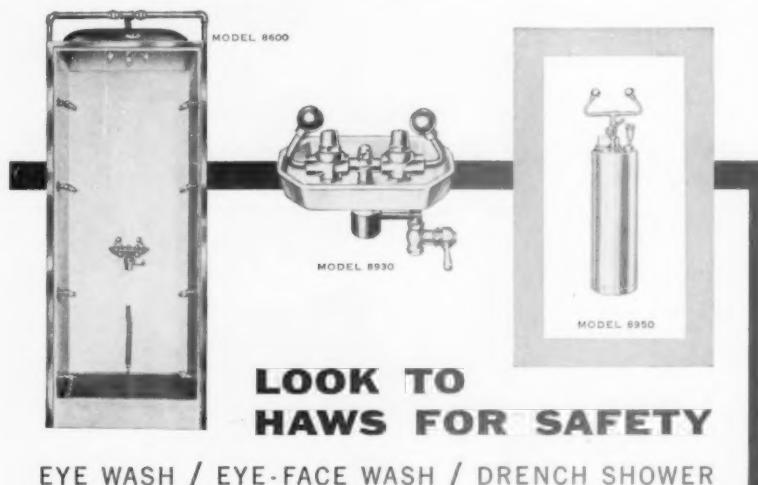
We often hear people speaking of "near-accidents." Pin them down to the facts and the truth comes out—the accident was there all the time but it seems there was no injury.

And while we are at it, why not eliminate the use of "safety-first," as a descriptive term for everything related to accident prevention activities—safety-first meeting, safety-first program, safety-first man, safety-first rule and what-have-you? Industrial accident prevention programs have come a long way from the days of the Model T and celluloid collars when the "safety-first" slogan was just about the beginning and end of the entire program. It was a good start but why hang around the starting line for fifty years?

Yes sir, to sum it all up, we don't relish attending a safety-first meeting to hear how a near-accident that happened because of carelessness when a safety hazard was overlooked could just as easily have been a lost-time accident.

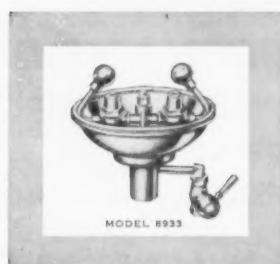
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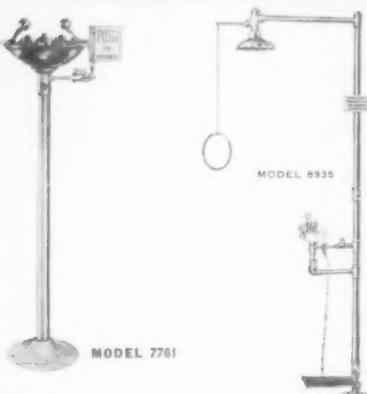
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Test Office Buildings For Radiation Protection

The Atomic Energy Commission has published a report entitled *An Experimental Evaluation of the Radiation Protection Afforded by a Large Modern Concrete Office Building, CEX-59.1*. The report contains the results of a study to determine the effective shielding against nuclear fallout provided by a reinforced concrete office building. The experimental tests were conducted early last year at the Commission's headquarters building in Germantown, Md.

The completed study aids in determining the best locations in the building for protection against fallout and provides experimental data on the shielding offered by modern office structures applicable to general civil defense needs.

During the experiment, conducted in February and March 1959, fallout was simulated by use of a cobalt 60 source. The radiation source was circulated, during nonworking hours, through about 5,000 feet of small diameter plastic hose placed over the ground and building in such a way as to approximate the characteristics of a radiation field.

Technical Operations, Inc. of Burlington, Mass., which made the survey, has employed the same techniques and equipment used in the conduct of similar research on other types of structures for the Office of Civil and Defense Mobilization at Boston, and in co-operation with the AEC at the Nevada Test Site.

General conclusions drawn from the survey were:

- As was expected, the shelter factor is highest in the basement of the structure where the walls were not exposed above ground. The shelter factors found typical are:

Location (center corridor)	Factor
Basement	500* to 10,000
First floor	80 to 100
Second floor	200 to 300
Third floor	250, 250**
Fourth floor	100, 50**

* Near totally exposed basement wall (no windows).

** Nontypical thin roof exists in wing A east only.

- Complete burial of the basement wall so that the land is graded above the elevation of the first floor significantly reduces radiation penetration.

- Average conditions (i.e., the radia-

tion field is fairly uniform in longitudinal building direction) exist beyond distances of approximately 8 ft. from the inner face of an external wall.

- The dose rate is 5 to 10 times higher than average at the immediate inside of a window opening.

- An additional protection factor of at least 2 may be gained on the first floor below window sill level.

- The effect of concentrated fallout located within the shelter area in air filters and roof drains may be disastrous to shelter capability. A shelter

factor of less than 1 (dose rate in shelter higher than that outside shelter) is possible in an appreciable portion of the basement if a large amount of fallout material is concentrated in the emergency air filters situated within the shelter area.

7. As a result of the measurements with a source located in the initial air plenum chamber it seems that emergency air filters could be reinstalled profitably in this location outside the blastproof portion of the basement if fallout accumulations in the filter were expected to be great.

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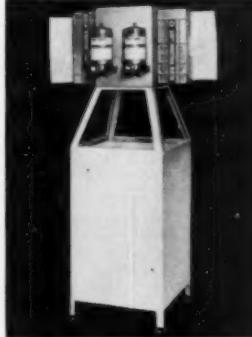
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wiper brackets, large waste
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Revise Code for Aluminum Finishing

Another in the National Fire Protection Association's series of fire-prevention codes for explosive dusts has been approved by the American Standards Association. It is titled *American Standard Code for the Processing and Finishing of Aluminum, Z12.19-1959*.

The aluminum finishing code was officially adopted by NFPA in 1956. It has been amended by the addition of a paragraph giving precautions to be followed when powder-operated tools are used.

The aluminum code indicates the practices necessary to reduce the possibility of fires or explosions for industries where aluminum and aluminum alloys are subject to processing or finishing operations in which a fine metallic dust or powder is liberated. It applies to operations such as grinding, buffing, and polishing. In some of these operations the aluminum particles may

be intermixed with other materials such as lint, wax, solvents, or abrasives. It also covers the handling and storage of aluminum powder by processors.

The manufacture of aluminum powder is covered by the newly revised American Standard Code for the *Prevention of Dust Explosions in the Manufacture of Aluminum Bronze Powder, Z12.11-1959*. The American Standard Z12.19 is available from ASA at 40 cents a copy; American Standard Z12.11, at 50 cents a copy.

Beauty in Factories May Be Hazard

The trend toward beautifying factory interiors through use of pastel colors may play havoc with safety precautions, a paint expert warned today.

Robert A. Fergusson, president of Rust-Oleum Corporation, Evanston, Ill., says strong colors used to signify dangerous or moving equipment are being toned down to fit modern

decor. This is especially true of new factories, he pointed out. As a result, the colors may no longer be recognized as danger signals.

Certain basic strong colors are now accepted as symbols. Mr. Fergusson lists these:

Alert orange for portions of machines or equipment which might crush, cut, electrocute, or otherwise injure.

Vivid yellow to indicate tripping or moving equipment hazards and objects such as low beams.

Pimento red for all fire protection and fire-fighting equipment.

Precaution blue to mark electrical controls, elevators, less hazardous areas, operating levelers.

Safety green to identify first aid kits, safety equipment, and locations.

Purple to warn against radiation hazards.

Decorative schemes based on color complementation tend to use pastel color as background and often cause strong colors to blend with their surroundings, Fergusson pointed out.

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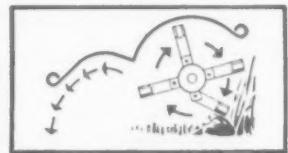
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Film Teaches Safe Operation of Construction Equipment



"The record states that on the date in question, one Henry Richard Grogan, tractor scraper operator of nine years' experience, caused an accident in the following manner . . ."—From "The Quota."

Re-creation of construction accidents and a review of errors causing them are thematic in "The Quota," recently premiered 16-mm sound-color film.

In teaching construction equipment operator safety, the action revolves around case histories of crane, dozer, scraper, and tractor shovel operator mishaps, as each operator reports in at heaven and is declared "over the quota."

Presented for the first time before the Accident Prevention Committee of Associated General Contractors in San Francisco, this 25-minute motion picture can be purchased by AGC members for use in their training programs.

Clark Equipment Company's Construction Machinery Division sponsored the film in cooperation with the National Safety Council's Construction Section.

Pilot Productions, Inc., Evanston, Ill., did the photography.

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National Safety News, May, 1960



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Circle Item No. 63—Reader Service Card

Japanese Safety Delegation Hears Staff Specialists

A delegation of owners and managers of Japanese chemical firms visited NSC recently.

They packed as much fire prevention, chemical safety, and industrial hygiene as possible into a one-day course. In addition, staff training specialists lectured the group on employee-supervisor relationships, employee participation, and the National Safety Council-industry setup.



Camera-conscious Japanese visitors photograph the photographer.

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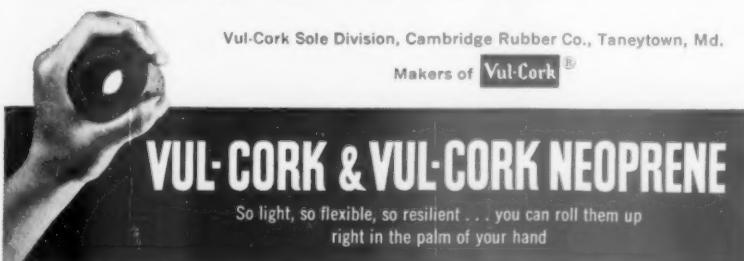
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Awards made by the National Safety Council for successful application of artificial respiration



E. R. VICK, line foreman, Gulf States Utilities Company, Beaumont, Texas—resuscitation after fall from utility pole.

JACK R. GRIBBLE, splicer, The Pacific Telephone and Telegraph Company, San Francisco, Calif.—resuscitation of choking infant.

ARMISTICE E. SOUTHALL, welder, U.S. Navy Mine Defense Laboratory, Panama City, Fla.—drowning.

ALBERT ROONEY, superintendent, McNamara Road Construction Ltd., Hannon, Ont., Canada—electric shock. Certificate of Assistance—
GERALD CLARKE.

WILLIAM W. DOWNS, lineman, Salt River Rural Electric Cooperative Corp., Bardstown, Ky—electric shock.

CLAUDE W. OWENS, utility man, Permian Basin Pipeline Co., Subsidiary of Northern Natural Gas Co., Omaha, Neb.—drowning.

JOSEPH J. SVOBODA, oiler, Northern Natural Gas Co., Omaha, Neb.—resuscitation of motor vehicle accident victim.

Wire from Washington

—From page 8

set up within the U. S. Department of Commerce a register of names of persons whose motor vehicle operator's license was either refused or revoked. Although such a register was recommended in the Secretary of Commerce's report to the Congress, on "The Federal Role in Highway Safety" (see "Wire," April 1959), the Department of Commerce urged deferment of enactment to enable completion of a study of costs and various administrative aspects of the proposal. The bill's sponsor highlighted the inaction by the states in acting jointly. "If the states are not going to do it, the federal government must take the lead."

Maj. Gen. George C. Stewart, executive vice-president, National Safety Council, testified that: "The Council recognizes the need for, and earnestly desires, the establishment of a service that will make information as to revocation or denial of a driver's license in one state readily available to other states." He stated that the "Council would wish that this could be accomplished without the creation of a new federal agency, but recognizes that progress to date on a cooperative basis among the states has been disappointing." However, he warned that a substantial proportion of the Executive Committee of the Council's Traffic Conference, "expressed varying degrees of reservation as to the feasibility of effectively administering the proposed services" of H.R. 5436. The AAMVA testified in opposition to the bill in terms of "the practical problems" involved.

Aviation Safety. The Federal Aviation Administrator stated as his goal the attainment of air safety "to the most absolute degree possible."

Recent air crashes have caused grave concern in the Congress. On the Senate floor, for example, Senator Hartke (Ind.) asked: "Are our airports as safe as they can be? Are the airplanes as safe as they can be? Are the airplanes being manufactured with all the safety devices which can be attached? Are air traffic control centers doing their part to prevent collisions in the air?" On the other hand, Senator

Sparkman (Ala.) called attention to the fact that the certificated scheduled supplemental airline industry has completed 5 years of operation without a fatality in public passenger service.

Aircraft operations set a new record in 1959 at the nation's airports. Almost 27 million landings and take-offs were handled at the 222 airports served by FAA traffic control towers, an increase of about 300,000 over 1958, more than double the traffic of 1946.

FAA issued proposed regulations requiring all turbine-powered air carrier aircraft, including turboprops, to be equipped with flight recorders. The purpose is to preserve information to assist in determining the cause of in-flight aircraft incidents and accidents.

The Weather Bureau called for more research on high altitude air turbulence in clear weather, as an aid to flying safety.

FAA established a new Bureau of Aviation Medicine. According to

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FAA, this fact "points up the growing significance of the role of the medical program in the agency's primary mission of air safety." FAA has also appointed a consultant group of forensic pathologists to determine to what extent human factors may be related to aircraft accidents. The consultant located nearest to an accident will make an on-the-spot inspection to determine elements involving human factors, including: possible medical factors involving aircrew personnel; evaluation of adequacy of aircraft safety provisions; and cause of the accident.

The International Civil Aviation Organization's Subcommittee on Aerial Collisions met to determine whether need exists for an international agreement to define responsibility and limit liability in cases arising out of international air collisions.

Marine Safety. S. 1712, to extend

the application of the Motorboat Act of 1940 to certain U. S. possessions, was approved by the House and sent to the President.

State officials responsible for the administration and enforcement of state boating laws met under the aegis of the Merchant Marine Council, in order to provide coordination and cooperation between the Coast Guard and various states in the interest of uniformity regarding boating laws.

The National Shipping Authority of the Maritime Administration issued a regulation governing the competency of deck officers, safe operating practices, and the proper and effective use of radar.

Farm Safety. The President, by proclamation, set aside the week beginning July 24, 1960, as National Farm Safety week. The President stated that "various individual, regional, and national farm safety activities have proved their worth

in reducing the number of accidents which occur on our farms."

Public Health. The Senate passed S. 1283, the Federal Hazardous Substances Labeling Act, which requires that hazardous substances in containers intended or suitable for household use have labels bearing cautionary words and a statement of the hazard and necessary precautions. Under the bill, any unlabeled hazardous substance is subject to seizure, and criminal penalties are applicable for failure to comply. The Secretary of Health, Education and Welfare would enforce the act. Before passing the bill, the Senate was told that there are over 200,000 poisonings a year, resulting in some 5,000 deaths; that some 300,000 common household products contain poisonous or dangerous substances which lack adequate warning labels; and that the Public Health Service estimates that 600,000 children under 15 will swallow a poisonous

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or potentially poisonous substance each year.

The House Committee on Interstate and Foreign Commerce continued hearings on H.R. 7624 (S. 2197) for color additive amendments to the Pure Food and Drug Act, including a panel of scientists.

The Food and Drug Administration concluded a hearing on an order removing 14 coal-tar colors which may be used in lipsticks. The government's testimony, in substance, was that the colors were found toxic to rats at the levels fed and were therefore not harmless colors. The industry's view, in substance, was that the colors were harmless in the manner and amount that they were actually used and that this amount was insignificant when compared to the amounts fed to the test animals. The government's position was that no tolerances at all were allowed by the law.

In testimony before the Congress, the Food and Drug Commissioner testified that his agency was stepping up research on whether certain waxes used in milk cartons and bread wrappers contained cancer-producing substances.

"Environmental Health." The U. S. Public Health Service submitted to the House Appropriations Committee, at its request, a special "Report on Environmental Health Problems." The committee expressed disappointment at the absence of recommendations for program expansion and for financing, and therefore held hearings "to help us define the appropriate role of the federal government and an effective organizational structure to carry out that role."

The chairman of the subcommittee, Congressman John E. Fogarty (R. I.) said at the outset of the hearings: "Too little is being done and too little is being planned to give the people of this country adequate protection against the increasing health hazards of our changing environment . . . I am talking about the whole long list of environmental health problems—pollution of air and of water by new and increasing quantities of chemicals, of the new and growing dangers of radioactivity, of occupational health hazards, of the problems accom-

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panying the development of large urban areas of noise and of accidents."

The Public Health Service's Report said that the nation needs to expand its research and directional activities against environmental health hazards, and that there is need for some coordinating agency in this area. It proposed a "high level organizational unit" with federal funds and statutory authority of the same order accorded to the various National Institutes of Health, and promised further administrative recommendations at a later time. The Report defines the "scope of environmental health" to include accidents of all kinds, "problems of vehicle safety and highway design," and metropolitan transportation, among other areas of interest.

The Report outlines a 10-year program in various areas of environmental health, including water, air, ionizing radiation, food, solid wastes, occupational hazards, and accidents. Of accident prevention the Report says, in part: "Activities by official health agencies . . . have been concerned principally with home and traffic accidents and with accidental poisonings. They still fall far short of meeting the need for effective measures to reduce the toll taken by accidents, particularly among children. An effective national program requires a national data collection and evaluation system. Development and application of better methods for preventing accidents or ameliorating their effects must be developed and applied. The Public Health Service has a positive responsibility for providing leadership for more effective participation by health agencies in accident prevention programs."

Among the witnesses at the hearing, Dr. Ross A. McFarland, Harvard School of Public Health, testified "the prevention of accidental trauma should be the responsibility of preventive medicine and public health along with associated disciplines," and that federal funds be appropriated to the Public Health Service "for the support of research, training, and the control of accidents." The hearings closed on the note set by its chairman, of the need for the Public Health Service to assume leadership in this field.

Safety Library

—From page 82

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"Nuclear Safety in Manufacturing Plant." James E. McLaughlin. *American Industrial Hygiene Association Journal*. February 1960. Pp. 59-67.

Resuscitation

"Head-Tilt Method of Oral Resuscitation." James O. Elam and others. *Journal of the American Medical Association*. February 20, 1960. Pp. 112-812-115/815.

Static Electricity

"How to Measure and Control Static Charges on Plastic Webs." T. F. Mc-

Laughlin, Jr. *Modern Plastics*. February 1960. Pp. 120-121, 124, 192.

Steel Industry

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Survey

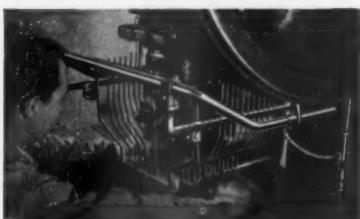
"Opinion Survey Motivates Safety." Rufus C. Browning. *Personnel Journal*. March 1960. Pp. 370-372, 385.

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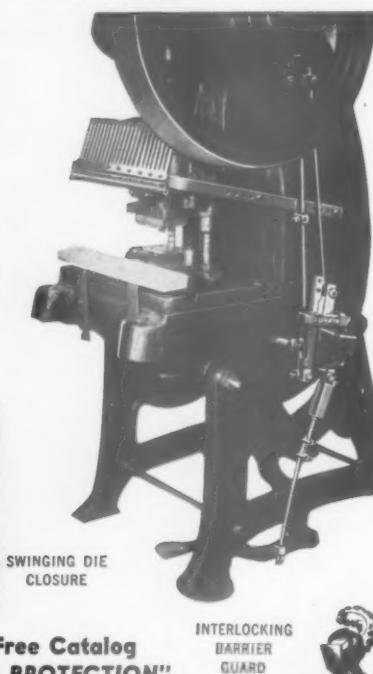
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"Laboratory Simulation of a Hot Industrial Job to Find Effective Heat Stress and Resulting Physiologic Strain." Harwood S. Belding and others. *American Industrial Hygiene Association Journal*. February 1960. Pp. 25-31.

"A Study of Heat Stress in Extremely Hot Environments, and the Infra-Red Reflectance of Some Potential Shielding Materials." Charles E. Lewis and others. *British Journal of Industrial Medicine*. Jan. 1960. Pp. 52-59.

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"Polar Expeditions as Human Laboratories." R. Goldsmith and H. E. Lewis. Pp. 118-122.

"Clothing for Cold Conditions." L. H. Turl. Pp. 123-128.

"Human Tolerance to Cold." Loren D. Carlson. Pp. 129-131.

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American Industrial Hygiene Association Journal, 1014 Broadway, Cincinnati 2, Ohio.

British Journal of Industrial Medicine, Tavistock Square W.C. 1, London, England.

The British Journal of Industrial Safety, 52 Grosvenor Gardens, London, S.W. 1, England.

Business/Commercial Aviation, 205 E. 42nd St., New York 17.

Coal Age, 330 W. 42nd St., New York 36. The Constructor, 1957 E. St., N.W., Washington, D.C.

Engineering News-Record, 330 W. 42nd St., New York 36.

Fire Engineering, 305 E. 45th St., New York 17.

Hospital Management, 1319 F St., N.W., Washington 4, D.C.

Industrial and Engineering Chemistry, 1155-16th St., N.W., Washington 6, D.C.

Industrial Medicine and Surgery, P.O. Box 44-306, Miami 44, Fla.

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Nursing Outlook, 2 Park Ave., New York. Pacific Factory, 709 Mission St., San Francisco 3.

Personnel Journal, P.O. Box 239, Swarthmore, Pa.

The Plant, St. Joseph, Mich.

Quarterly, National Fire Protection Association, 60 Batterymarch St., Boston 10.

Supervision, 404 N. Wesley Ave., Mount Morris, Ill.

U.S. Armed Forces Medical Journal, Superintendent of Documents, Washington 25, D.C.

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—From page 78

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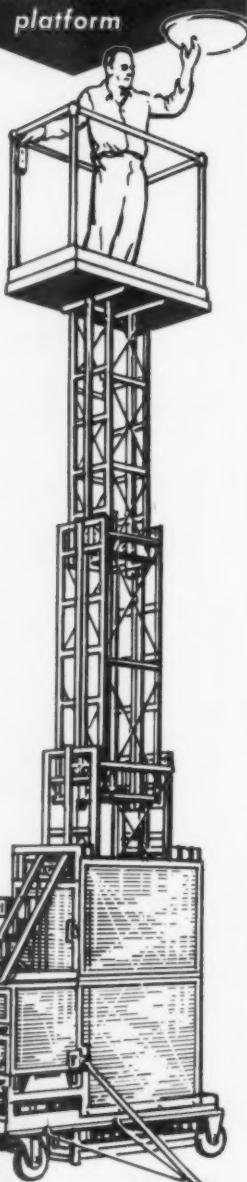
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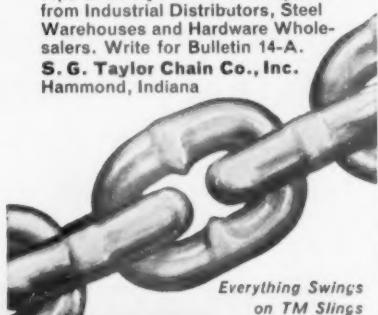
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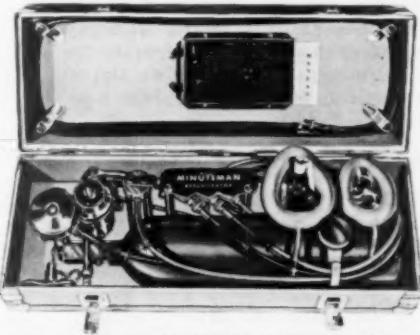
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The Model Plant

—From page 44

ship later. Now I want his respect." Bill paused and I didn't think of anything useful to say. Finally Bill went on, "That's a Lommerton cliche. I'm full of them. Most of them are damned sensible. Like the one that says, 'Never admit you've got troubles. The guy who helps you out of them will steal the credit.' That's sensible, too, but I make one modification of it.

"Maybe some Lommerton men are really as good as they pretend to be. I'm not. I've got troubles, and I need help. So I've modified the Lommerton cliche to read, 'Never admit to another Lommerton man that you've got troubles. Find an outsider who's a good guy, get help, and still keep the credit.' I'm asking for help from you."

I considered countering with the stock cliche of the project staff officers—"We are here to help you." But I didn't. Instead I looked at the rack of wall charts—all blank—and said, "How can you be in trouble? You haven't had your first accident yet."

"No, I haven't," he replied. "I haven't had time. But I will have it, and I'll have a lot more after the first one, and those charts won't stay blank. I'm writing on a clean page—there are no data with which to compare the record we build up. The plant back East is really a mare's nest—some of the finest equipment in the world jammed into a conglomeration of sheds and temporary structures and one or two

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decent buildings, all of which grew up in a whale of a hurry without long-range planning as the company mushroomed into the bigtime.

"This plant is the attempt to take all we've learned back at home base and create a model plant from scratch. So I'm on the spot."

I shook my head. "I don't see that. You still have a plant with people in it. You have a record to make, certainly, a program to set up and operate. But I don't see

that you are on any more of a spot than other safety men."

Bill snorted. "In Lommerton, Inc., everybody is supposed to be a great success. I've been given a plant with a minimum of physical shortcomings. I've approved plans from the rough sketch up to actual installation. Now I'm expected to deliver. It's the same with all of us. Production is supposed to deliver production miracles. Management is supposed to deliver top efficiency.

and low costs. Personnel is supposed to recruit, indoctrinate and train a group of capable and contented workmen.

"And I—God help me—am supposed to see that they don't get hurt. The management team that came out here was selected — boy, how we were selected! Half the execs in Lommerton's wanted assignments to this plant—and if any of us who are here flop, there are lots of boys back home to replace us."

I began to see the picture, and I began to stop envying Malloy for his plush setup. But all I said was, "What do you want from me?"

Bill picked up a pencil, poised it over a memo form, then put it down. He picked up a slide rule and toyed with it, then leaned forward across the table and pointed the rule at me.

"Just this," he said. "I need one good, old pro at this business with whom I can level. I need somebody to bring tough questions to. I need somebody to try out half-baked ideas on. Damn it, man, I need you as a combination consultant, father confessor, and critic. Will you take the assignment?"

The project hires me to be a consultant to the plant management, so that presented no problem. I'm always willing to be a critic. And I like Malloy, so I agreed to the father confessor role, too. And immediately, Bill gave me my first test.

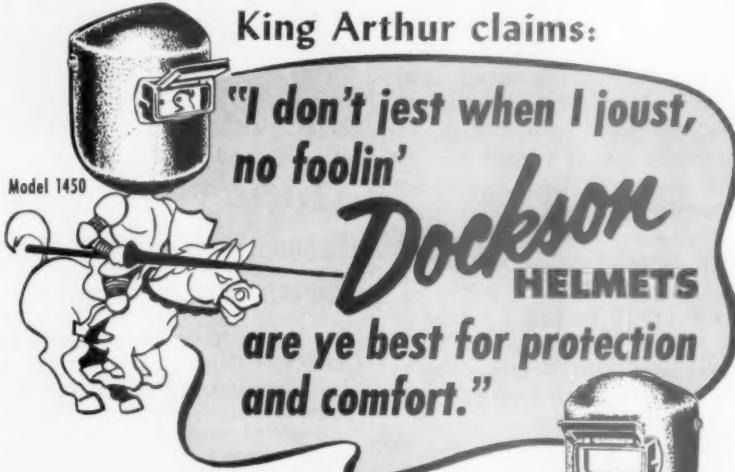
The plant manager, he explained is not a production man. The superintendent is. The superintendent (the only one who counts at the moment) gives lip service and little more to accident prevention.

"Budget I can get," Bill said, "but the active cooperation of the super is something else. The supervision is already overstrained and over-worked—getting oriented in a new plant and training a bunch of newcomers to our company's way of working. Our supervisors are good men, most of them. They know their jobs, and they know safety is part of the job. But they also know that production, fast, cheap production, is what will get them promotions. In this rat race they are in at the moment, they have to choose targets—and accident prevention is being selected out of the picture.

"Here are a bunch of new recruits from other industries, from retail

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stones, from high schools, from farms. They like the pay, and they like the working conditions, and they don't know accident prevention from a hole in the ground. Unless I can do something drastic—and quick—six months from now production is going to soar, and costs will be low—and the only flop in the whole plant will be Bill Malloy's colossal failure to keep the accident rate down. That's the problem, and I know it has to be licked from the super on down. How do I do it?"

So I started earning my nonexistent fee as consultant. I cross-examined Bill for 20 minutes on the personality of the superintendent, on the record of requests approved and rejected, on the background of company doctrine in the safety field, and on a number of related topics. Then I asked one last question: "Are you as scared as you sound?"

He looked me straight in the eye and said, "Man, I'm scared blue. I'm heading for a flop in my big opportunity."

"All right, then," I said. "Take the initiative instead of waiting for the blowup. Get a statement of the situation down in black and white in a memo to the superintendent. Tell him what you've told me, only simplify and explain more, since he's not a safety man. Then make a prediction of disaster unless he moves. Finally ask him for some single act of direct intervention. Make it something simple, easy, and pleasant for him to do. Maybe just one speech by him at a foremen's meeting in which he lays it on the line with the supervision."



"My son married a lousy housekeeper . . . I just don't know how he can stand it."

Bill shook his head vigorously. "Not a speech."

"All right," I replied, "if he doesn't like to talk, how about one well-managed tour of inspection, just you and him and maybe a stenographer with a notebook taking down his comments and directives. You could do your plant in a morning, and the sight of the two of you doing safety work together, and the follow-up on the inspection in the form of memos from him,

would establish the force and authority behind your program that you need."

Bill looked a little doubtful. "But why should he do it? I have trouble getting a half-hour appointment with him. Why should he spend hours with me?"

"The memo," I said. When Bill looked blank, I explained, "Your super is a brilliant man with a quick mind, right? He's an old hand at intra-company maneuvering, right?

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"Your memo is presented in full loyalty to him. You don't forward copies to the home office. You haven't gone over his head. But—and this is important—he knows that a carbon copy of the memo is in your files at a matter of routine. In the memo you have, in your capacity as safety specialist, pointed out a perilous situation. So, it is now a matter of record that he is informed. Second, you have made dire predictions about the results of failure. Now he is formally warned. Third, you have made a request which he can quite easily comply with, and which allows him to present an attractive face to his men, the face of the good father who cares for their welfare. The inspection tour isn't wasted, anyway, from his point of view. He's an old shop man who knows the value of keeping an eye on the shop, and he'll accomplish ends of his own as well as your ends in the tour.

"You have made it dangerous for him to refuse to cooperate, and easy for him to cooperate. Once you get that gesture on his part, you can really pressure supervision—but you don't need me to tell you about that."

Malloy thought a long time, and finally said, "That prediction business worries me. Suppose I'm wrong?"

"If he does what you want, you don't have to deliver on the prediction of disaster. If he doesn't, the disaster will probably come, and you'll have protected yourself. If he doesn't, and there is no disaster, you're probably not in too much trouble, because you'll have a fine safety record to brag about, and nobody goes around cutting the throats of the people who deliver the goods."

In the end, Bill agreed to try.

"But," he said, "this is only a first step. I think I'll be back for more help."

"Any time," I said.

As I stood in the doorway with my hat on, Bill grinned a broad Irish smile and said, "Where did you learn to be a Machiavelli?"

I didn't even smile back when I replied, "I've taken a 25-year course in it! Twenty-five years of industrial safety work!"

Circle Item No. 98—Reader Service Card

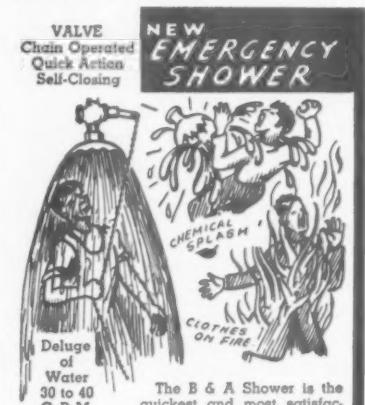


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Listening for Accidents

—From page 33

Could listening for accidents have prevented this injury? Since we can't put people in environments where they won't have problems, what preventive measures can be taken to offset temporary emotional situations?

Listen to the case of Mary. During a 15-year period she has had 18 accidents, six of which resulted in serious injuries. Over the years she has been given several different assignments in an attempt to suit the job to her capacities.

Mary's machine is guarded, but because of the nature of the operation the guard must be removed to make certain adjustments. The rule is that these adjustments are to be made by the supervisor, and that under no circumstances is she to remove the guard. She had seen the operation done many times, so when the supervisor was called away for a short period, she secured the key from his desk. In her hurry she failed to replace the guard. She lost a hand.

Here's a problem that differs from Jimmy's, whose accident was the result of a temporary situation. Mary's is a long-term problem, stemming from a chronic poor attitude situation.

The third and last case involves Bill. It concerns off-duty accidents, which have the same final results as those on duty.

Bill had a self-supervising job and drove a company car. During 28 years of employment with the same company he had no personal injury accidents and only one minor motor-vehicle accident. His company car was equipped with seat belts, and Bill used them. When he bought a brand new 275-hp car of his own, he had safety belts installed.

There is a limit to what physical safeguards can do. These belts are designed to take care of impact resulting from speeds only up to about 60 mph.

It was 8:30 in the evening, almost dark and with a light fog shrouding the surrounding hills when Bill decided to try out his new car. He was alone, so no one knows for sure what happened. Expert opinion was that he failed to make a slight curve

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while going well over 100 mph. When he hit, no safety belt in the world could have saved him. The belt broke and Bill was ejected from the car. That 275 hp "tower of power" resembled a metal pancake.

Bill had a long record of accident-free performance on the job, but it was well known that he liked to speed in his own car. His case was different from the other two. He worked safely on the job, but off duty it was another story.

Listening for accidents? These cases tell why we must listen. What can we do about it? That's one of the important problems of our times.

Here are some symptoms of accidents in the making which we should watch for when "listening for accidents":

1. Errors in performance of work.
2. Changes in everyday behavior and manners.
3. Changes in simple habits of a routine nature.
4. Near accidents.
5. Poor employee and supervisory safety attitudes. (These can be measured with industrial safety attitude scales.)
6. "Safety program fatigue."

Not all of these are things the safety man can do by himself. Many of them must be done on the job by the line supervisor as the job is being done.

I wish to call your attention to the recommendations made by a panel of leading psychiatrists, psychologists, executives, and safety engineers at the recent President's Conference on Occupational Safety. These are things which must be



"... the SAME Officer Davis who gave me a ticket!"

done if we are going to listen for accidents and be in a position to do something to prevent them:

1. In selecting the right job for a person, consideration must be given to his capacity for maintaining a psychological balance under the stress of that particular job. It is not the stress but the manner in which the individual responds to stress that tends to cause accident involvement. Ability to cope with stress varies in the same individual from day to day. Accidents are frequently symptoms of personality defects and often serve a purpose in some particular problem, destructive though the solution may be. Management and safety personnel should be so informed that they may deal with causes, not merely with symptoms.

2. Opportunities should be given to workers to verbalize their feelings and tensions to reduce their accident potential. Controlled discussion in groups with a properly trained supervisor has excellent therapeutic value.

3. Safety programs must be fair and consistent and continuous in their administration. A continuous firm attitude, however severe it appears at the time, is better than a vacillating, inconsistent attitude. Inconsistency on the part of management can only lead to doubt and anxiety in the worker.

4. Industry must realize that the core of our personality structure is formed in early home life.

5. Safe working patterns will be strengthened in the breadwinner if the family is encouraged to participate in safety award functions.

6. There should be no variation from the fact that safety is a responsibility of the entire line management, and individual management people cannot delegate it.

7. Future training of professional safety people and line management must include systematic study of motivation and must recognize the complexity of the forces influencing behavior. Among other things, this training should equip them to "listen for accidents" by spotting indicators of potential accidents, such as errors in performance, changes in manners and simple habits, and near accidents. If their possible significance is recognized, preventive action can be taken.

Methods just listed that have not yet been fully used must be explored, because the present commonly accepted major cause for injuries has to do with motivation based on the study of individual behavior.



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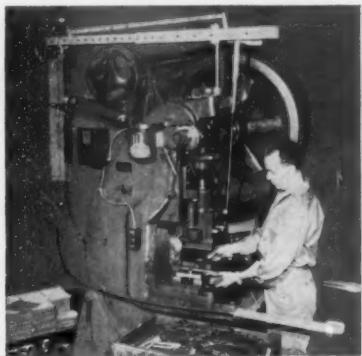
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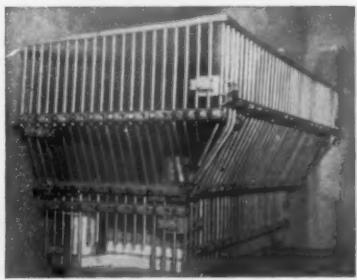
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6. Traveling Barrier Guards
7. Riveter Guards

Write or call today.

SAFEGUARD Mfg. Co.

Woodbury, Conn.

Congress 3-3385

Community Program

—From page 21

The safety programs of many of these organizations are limited in scope, but if they can be integrated into an over-all program, they can be a powerful force for accident prevention. We should bear this in mind, too. With the coming explosive growth in our population, we are going to need all the help we can get.

I would like to add a special word for another type of organization which is peculiarly suited to do a fine job in community safety: the church. I say "peculiarly suited" because it is the basic job of the church to teach Christian principles, to establish and strengthen moral values, and to build good citizenship—and these are powerful tools for building attitudes and habits of safety.

The safety-oriented man is his brother's keeper. He practices the Golden Rule. He assumes responsibility for his own actions, and for helping others. He is a safe man because he is a good man, in the simplest meaning of the word.

Here the churches can do an enormous amount of good by working closely with the local safety program. By linking safe behavior with good behavior, the church can throw the weight of its teachings into the fight to reduce the accident toll.

Looking at these individuals and groups it is clear that manpower is no problem if the leadership is there to mobilize it. But manpower, even with adequate leadership, is of little value without a practical program. How can we build good safety programs?

At the national level much of



"No, I'm too SOBER to ride with you!"

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WILDER
IN QUALITYADJUSTABLE
SOLDERING IRON
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Model No. 55

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the work of program planning is being done by organizations I have already mentioned. The National Safety Council is working with local groups on the whole broad front of building programs for community safety. The American Society of Safety Engineers is mobilizing its entire membership in support of the community safety program. The Automotive Safety Foundation is taking the lead in coordinating traffic safety efforts across the country. A great variety of other agencies are actively engaged in one or more phases of promoting community safety programs. I repeat: We need a great centralizing movement to coordinate these programs, but *not* by legislation.

At the local level, the program almost dictates itself if we look squarely at our communities and their needs.

First, let's look at the schools.

Nearly every school has a safety and fire prevention program, but not every school has an effective program. An effective program should begin with the codes that regulate buildings and equipment. Are they adequate? Are they enforced? Ninety-three children in Chicago paid with their lives in 1958, for mistakes that proper training in building evacuation and adequate municipal code requirements would have prevented.

You can find old and dilapidated schools all over the country in every state in the union. Some of them are firetraps and should be condemned. But the others can be made safe. The average cost, according to the best estimate given me, would be about 60 cents per pupil per month,



"Miss Lehigh, when I said wear safe, snug clothes on the job, I meant . . ."

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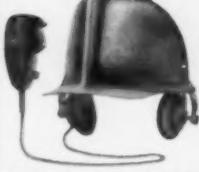
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Hard-hat with built-in radio, antenna, earphones and microphone.

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or \$7.20 per year! Can we afford the price? I think we can.

Next in line come inspections. Who has the responsibility in your community? How often is it done? How thoroughly? Are violations corrected quickly? Who checks to see? Do you know?

How are fire drills handled in the schools in your community? Are they mere half-hearted routines, or do the teachers use them to meet in advance every problem that might

occur? The fire in Chicago occurred on December 1, 1958. You know the story of how the children were trapped. But on December 16 in a different section of Chicago an almost identical fire broke out. This time, however, the building had been made fire safe by the installation of automatic extinguishing equipment, and the fire was quickly put out. The teachers and pupils knew nothing about it until it was all over.

Some schools have fire drills only

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in pleasant weather, so that the children will not be inconvenienced. In other schools teachers have not had proper anti-panic training. In others the whole thing is treated as a lark, and the children are not taught the importance of following drill routines. This is criminal negligence.

High on the school safety program should be such danger areas as the manual training shop. Are the machines equipped with the proper guards and safety devices? Are the students taught safe practices for handling power tools? Are the power tools grounded? These things cannot be assumed; they must be known. I have visited shops and found violations that astonished me—unsafe machines and practices that would not be tolerated for an hour in an industrial plant. Yet a young hand or eye can be damaged permanently just as easily as an older one.

Safety should be a standard part of the school curriculum. What will it benefit a child to develop culturally and intellectually, to learn the tools of arithmetic and grammar, if he is going to lose his life in an accident that could have been prevented? Properly handled, early safety training generates life-long safety habits. Yet the great majority of young men and women who leave our schools and go to work have only the most rudimentary idea of safe practices.

Safety teaching should be slanted, in part, toward encouraging safe practices in the home. One of the best missionaries of safety is a child who has been thoroughly indoctrinated in accident hazards and their prevention. In the long run, safety education in our schools is perhaps the most fruitful approach to building safe habits into the population.

Now let's turn to the home. It is a sad commentary on our lack of common sense, but last year 26,500 people were killed at home. The word "home" is a symbol of safety and security. Yet the blunt fact is that many of our homes are death traps. Fire, falls, knives, hot liquids—we build the traps and then fall into them. Why?

Families need a safety analysis to make them aware of the dangers

they are living with. They need somebody to show them how to eliminate hazards. They need somebody to check on them to see that they correct the dangerous conditions. They need somebody to show them what to do in the event of fire or other sudden catastrophes. They need somebody to build in them the habits and attitudes of safety through instruction and drill. This is the kind of home safety program we need. We won't have an effective home safety program until it is geared to satisfy these needs.

We need similar programs at every level of activity in the community. We must convince everybody that accidents can happen to them. We must teach accident prevention to the entire population. If we don't, we are failing to achieve our safety goal.

In closing I want to say a brief word of praise for those who are working to reduce traffic accidents. In spite of the rapid rise in the number of passenger miles driven, the traffic safety program has actually succeeded in cutting the traffic toll. But we have no cause for complacency. We killed just about 38,000 Americans with motor cars last year, and this is a ghastly toll. I think we are on the right road with our safety programs, but we must do more—much more. We need better driver training, better methods of licensing, better maintenance of our cars, and better knowledge of the driver's physical and emotional condition.

We also need a greater under-

standing and acceptance of the uniform traffic law recommended by the President's Highway Traffic Conference. Many of our traffic laws are confusing and some do more harm than good.

We also need to improve our system of traffic courts. Some of our courts are models of justice and convenience; others are so crowded they are little more than production lines for levying fines. Such courts

create disrespect for all law, and respect for the law is a foundation not only of traffic regulation but also of the law of our land. The American Bar Association is doing much to improve the situation, and I think we should back them to the limit.

Potentially, people should be as safe on our highways as they are in our industrial plants. Yet in Republic our records show that an employee is about 28 times safer

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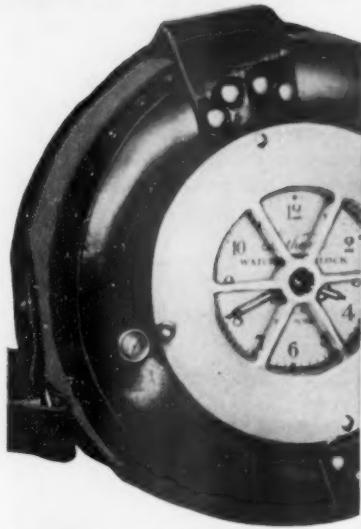
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The Vanguard permits you to keep three days registration on a single dial ... eliminates the need for a change of dial over weekends and holidays. The economical Sentry carries a standard 24-hour dial. Both feature the same precision workmanship, and can be furnished with up to forty station keys. Your Lathem Watchman's Clock has a leather carrying pouch, 8-day jewelled movement and is housed in a hermetically sealed, shock-proof aluminum case. Write today for full information.

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in our plants and mines than he is in his car!

I say this not to boast about industrial safety programs, but to illustrate the kind of progress that can be made in our over-all community programs, traffic included. These are big jobs, challenging jobs. They will not be done with gimmicks and superficial programs. In the hard-to-control environment of the community, safety is a long-range problem of education and training; more a life-long task than a course that can be taken and filed away.

We need research in human motivations and attitudes. We need to know why men and women refuse to protect themselves from maiming or death. We need to learn how to build safe habits. We need to know why we do stupid things that kill us or leave us crippled.

If we dig deep, we may learn that our efforts to prevent accidents are still quite superficial, and comparatively ineffective. If this is true, we must face it. We may find that our problem is not to prevent accidents but to build good citizens. We may find that the discourteous, ineffectual worker, and the discourteous, ineffectual driver, and the discourteous, ineffectual parent are actually the same person wearing different hats. We may find that the cause of his difficulty lies far back in the days when he was a discourteous, ineffectual child.

In other words, an accident may be merely a symptom of a deeper, much more serious disease than we have allowed ourselves to think. In years to come we may treat accident proneness as we would treat arthritis or a peptic ulcer. I don't see the safety man being replaced by an accident prevention pill, but I do think that research may help the safety man find specific cures for the accident problem.

But no matter how much we learn, the great and growing need will always be for men and women —leaders of safety, workers for safety—who will devote their time and effort to the job. For it is they who must preach the philosophy of safety. It is they who will translate new knowledge into programs. It is they who will make the programs work.

THE POSITIVE LADDER SAFETY DEVICE LOCKS-IN-A-NOTCH



Prevents death and injuries from falling.

If climber starts to fall, device locks in a deep notch on carrier rail and limits fall to approximately 6 inches — distance between notches.

LOCKS AUTOMATICALLY and INSTANTLY—HOLDS SECURELY

Will catch and hold workman if he starts to fall, even if unconscious. Cannot slip on down ladder. Requires no attention from climber; he climbs in normal manner. Inexpensive. Easy to install; 3 men can clamp it to ordinary ladder in few hours. Clamps to any rung ladder, peg ladder, pole or framework. No welding or cutting. Notched rail hot-dipped galvanized. Entire equipment rust and corrosion proof. Can be kept free of ice by applying heat inside the carrier rail. In use approx. 11 years. Approved by Safety Engineers and Govt. Agencies throughout country. Patented. Manufactured only by

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NEW PORTABLE SINGER SCREEN

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NOW — a lightweight portable screen designed for complete enclosure. Easy, fast slip-joint assembly (no threads). Rust-proof finish. In 3 curtain materials:

JOHNS-MANVILLE ALUMINIZED ASBESTOS cloth — the last word in protection . . . neoprene-coated FIBER GLASS . . . 12 oz. fire-resistant DUCK. All sizes. Also available in single and three-sided models. Ask your dealer or write us.

16 PAGE CATALOG

Complete line of work gloves, welding gloves and safety clothing.

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New

SAFETY EQUIPMENT

Product announcements in this section are reviewed for compliance with the advertising policy of the NATIONAL SAFETY NEWS. Inclusion should not, however, be construed as endorsement or approval by the National Safety Council.



Particle Inspection Cans, Bottles

Magnetic particle inspection materials are available in pressurized spray cans and plastic squeeze-bottles.

These materials can be used with any of the magnetic particle inspection equipment or test kits already in operation throughout industry.

These materials eliminate bulky containers, and the problems of mixing to formula, or filling application devices, and reduce set-up time to inspect complex parts. The new sealed dispensers keep out dust, moisture, and other contamination during storage.

The No. 14M Fluorescent Magnaglo Bath and No. 9BM Magnaflux Bath are offered in 12-oz. pressure spray cans. The No. 1 Gray Powder is now available in plastic squeeze-bottle dispensers, each containing one pound of magnetic particles.

Magnaflux Corp., 7300 W. Lawrence, Chicago, Ill. (Item 301)

100% Dynel Work Clothing

One-hundred per cent Dynel modacrylic fabrics for chemical resistant work clothing and utility garments have been introduced.

Three patterns are available in X-Tel group of 100 per cent Dynel twill weaves: dark oxford, medium gray and blue with white pin stripes. These fabrics are 45 in. wide, woven of solution-dyed yarns, and feature anti-static finish.

New additions by the Industrial Division of Travis Fabrics, Inc., is a 6-oz. twill in natural, charcoal, green and navy colors, plus a 6-oz. taffeta construction of solution-dyed yarns in a salt-and-pepper black and white.

Union Carbide Chemicals Co., 100 E. 42nd St., New York 17, N. Y. (Item 302)



Rubber Encased Wiring

Nearly flat rubber encased wiring reduces the danger of tripping over messy tangled extension cords. Electriduct hugs the floor and equipment on casters rolls over it.

This idea eliminates the cost of tearing up the floor for installation of permanent wiring.

Straight standard lengths of this extension cord are available in 4, 5, 6, and 10-ft. lengths.

Electriduct Div. of Ideas, Inc., 214 Ivinson Ave., Laramie, Wyo. (Item 303)



Hard Hat, Suspension

For the oil field and construction worker, road equipment operator, lumber dealer, employer, farmer, or anyone needing head protection, a lightweight aluminum safety hat is available.

Construction with full brim for added protection to neck, ears, and shoulders, this metal shell is formed in one piece from aluminum alloy and is ribbed for strength. Edges are rolled for rigidity in the brim.

With satin finish, these hats are sun reflecting, offering cooler comfort. The aluminum shell is supported on Geodetic suspension.

This type of suspension is constructed to conform to the head of any worker and resists the tendency of the hat to shift, tilt, or crash against the skull under angular blows. These suspended hats maintain at least 1 1/4 in. between the top of the head and the shell.

There is no center crown or string to tamper with or accidentally become loosened. This suspension is mounted into the hard hat shell by six clips. The standard sweatband is leatherette, and genuine leather is available. The suspension is easily removable for washing or replacing of the sweatband.

Models include No. 33 hat and 32 cap.

Willson Products Div. Ray-O-Vac Co., 212 E. Washington Ave., Madison 10, Wis. (Item 304)



Removable Ear Seals

Removable ear seals can be taken off and put on the domes in seconds. A braided nylon and neoprene band holds the seals securely in place. The four-leaf-clover design of the filters inside the domes trap extra decibels of sound.

The new model weighs 11 oz. A flexible head band with a lower spring tension reduces the pressure on the top and sides of the head.

The ear domes are green, which adds psychologically to wearing pleasure and serves as a safety reminder.

David Clark Co., Inc., 360 Park Avenue, Worcester, Mass. (Item 305)

Modular Steel Floor Plate

Mod-U-Lok, a modular steel floor plate is useful in the industrial and warehouse flooring field because of its modular size, coupled with the locking tabs that hold it in place until the concrete cures. These plates will not warp, buckle or rattle under the heaviest traffic loads. Thirty-two exposed concrete surfaces in each plate assures safe footing in places normally wet or oily. These foot-square plates have 52 steel prongs, top and sides, that anchor into the concrete base.

This product reportedly provides a permanent, level, safe flooring that will not crack, chip or dent.

Rockwell-Standard Corp., Stamping Div., 1002 Oswego St., Utica, N. Y. (Item 306)



Safety Rungs

Port-O-Rung is applicable on sea-going vessels wherever there is a vertical ladder with one or more defective or missing rungs.

Each model can be installed in either an upright or inverted position to replace missing top rungs. Two units can replace two consecutive rungs.

Adapter units attached to the main models replace two top or bottom rungs. Additional adapter units will replace any number of missing rungs.

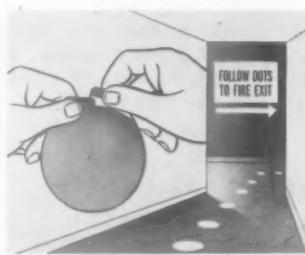
One man can make the repair in a few minutes during cargo operations—and provide a temporary rung as strong and rigid as permanent ladder rungs for as long a period as required.

Gagnon Enterprise, 77 River Street, Hoboken, N. J. (Item 307)

Protects Against Liquid Oxygen

A special garment to be worn when handling liquid oxygen has been designed. Made of vinyl-coated glass cloth, this garment offers coverage for the head and body and opens down the back. The hood can also be slipped forward when not in use.

M. Setlow & Son, Inc., 121 Chestnut St., New Haven, Conn. (Item 308)



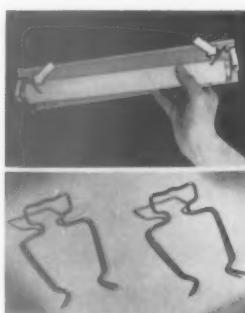
Self-Sticking Markers, Arrows

A system to guide personnel in industrial plants and offices to points inside the plant building uses colored floor markers to show the way to fire fighting equipment, emergency exits, first aid stations, and other vital locations.

Self-sticking markers are furnished in four bright, fadeproof colors—yellow, red, green and white. They are made of .005-in.-thick vinyl, and will withstand severe truck and pedestrian traffic, unaffected by oil, grease, acids, salts, cleaning compounds and most solvents. The markers outlast paint 7 to 1 in actual tests.

Self-sticking vinyl directional arrows are available in caution yellow, and can be applied over or adjacent to colored markers.

W. H. Brady Co., 727 W. Glendale Ave., Milwaukee 9, Wis. (Item 309)



Slip-on Guard for Fluorescent Lamps

A slip-on guard prevents fluorescent lamps from falling from their sockets. Fluorescent lamps can be made safe in shops and plants where running machines, punch presses, cranes, and lift trucks set up continuous vibration.

This safety unit is called Gets-A-Lite Guard and Guide. It is made of spring steel wire, copper coated, in the form of a squared-off "U" with an over-all length of 2 1/8 in. and 1 1/4 in. at the widest part. The two prongs turn outward. At the opposite end the wire is formed into a small rectangle, set at right angles to the prongs.

The rectangle section is slipped over the fixture socket, with the prongs protruding at a 45 degree angle. A Guard and Guide is used at each end of the fixture. The fluorescent lamp is then inserted.

Gets-A-Lite Co., 3865 Milwaukee Ave., Chicago 41, Ill. (Item 310)



Sanitizer Deodorant

Two-Way sanitizer and deodorant is a germicidal effective against gram positive and gram negative bacteria. It reportedly is 22 times more effective than Phenol and controls resistant strains of bacteria producing

typhoid, dysentery, food-poisoning, colon infections, and fungi producing molds of ringworm or athlete's foot.

This deodorant may be used on interiors or exteriors of buildings in such areas as dispensaries, meeting rooms, bathrooms and in vehicles.

The chemical will not damage materials in hard hats and caps, welding or sand blast hoods, winter liners, boots or shoes, telephones or instruments. Skin and inhalation tests on both humans and warm-blooded animals indicate no irritation.

This product is packaged in 12-oz. aerosol containers, 12 to a carton.

E. D. Bullard Co., 2680 Bridgeway Blvd., Sausalito, Calif. (Item 311)

Lead-Loaded Dry Box Gloves

Rad-Bar lead-loaded dry box gloves now are being offered in standard heavyweight and lightweight thicknesses, in several dimensions, styles and hand sizes. These gloves are seamless, milled Neo-Sol neoprene by the multiple-dip process, are designed for soft gamma shielding, and are high-voltage electrically tested to assure protection.

Their density is 3.95 grams per cubic centimeter. Tests of these gloves, conducted on Cadmium 109 at .087 Mev. show the heavyweight glove, with 0.060 in. nominal over-all glove thickness, has a lead equivalent of 0.36 MM and the lightweight glove with 0.030 in. nominal over-all glove thickness has a lead equivalent of 0.10 MM.

In the Charco process of multiple dipping, the inside and outside exposed surfaces of these gloves are built up of unleaded Neo-Sol neoprene, protecting the wearers' skin from contact with the lead-loaded interior portion and providing maximum oil and chemical resistance.

Charleston Rubber Co., 16 Stark Industrial Park, Charleston, S. C. (Item 313)

Audible Signal for High Noise Areas



An audible signal is available for use where coverage must be maintained over a considerable distance and for penetration of high-level noise areas.

The vibrating diaphragm is driven by a contactless armature, producing an audio output in excess of 105 db at 3 ft. It operates on standard 60-cycle circuits.

Signal Horn PA-37100 can alert personnel to impending danger, notify when machinery speed or temperature limits are exceeded, warn of various operational conditions, announce process completion in automation, and function as an industrial signal in other manufacturing operations.

Wheelock Signals, Inc., Branchport Road, Long Branch, N. J. (Item 314)



Shoe Covers Fend Off Radiation

Protection from contamination and radioactive materials is possible with plastic shoe covers.

They are waterproof, lint-free, dustproof, and washable. Protection from grease, oil and most acids is assured. Strong, yet lightweight and made with non-slip soles, these covers are available in different styles.

Defense Apparel, 115 Allyn St., Hartford, Conn. (Item 315)



Rapid Exit Air Escape Mask

Rapid exit from contaminated or oxygen-deficient atmospheres is promised in an air escape mask.

The 8-lb. unit, carried on a nylon harness, is designed for virtually instant operation in emergencies. The demand regulator is incorporated directly into the compressed air cylinder, eliminating need for manual valve operation. With mouthpiece and nose clip in place, the escape mask is ready for service under normal breathing conditions. It provides protection under exertion for about five minutes.

The escape mask assembly can be worn for long periods before actual use. Unit weight is evenly distributed, with the air cylinder and demand regulator attached to an aluminum plate worn on the hip. The shoulder strap of the harness provides a "keeper" for retaining mouthpiece, exhalation valve, and nose clip assembly within easy reach of the wearer.

The air cylinder contains 6.5 cu. ft. of compressed air when fully charged. Refilling can be achieved quickly, without removing demand regulator or operating mask valves. A sintered metal filter protects the refilling hose from entrance of contaminants, such as rust.

Mine Safety Appl. Co., 201 N. Braddock Ave., Pittsburgh 8, Pa. (Item 316)



360-Degree Wash Fountain

An emergency eye and face wash fountain series has been designed to blanket facial areas with cleansing water from all angles. The stainless steel bowl contains a 360-degree spray ring, with six broad-coverage spray jets.

Spray jets are activated when the "push valve" is moved. The valve stays open until manually closed, leaving hands free to assist in first aid. These emergency facilities render immediate assistance in accidental contamination by chemicals, caustics, fire or other matter.

Water coverage is over a 95-sq.-in. area, and jets deliver 8 to 10 gals. per minute on 10 lbs. flow pressure. All functional parts of these units are of corrosion-resistant red brass, chrome plated. Bowl is 22-gauge, type 304 stainless steel. Wall and pedestal models are available.

Haws Drinking Faucet Co., Fourth & Page Sts., Berkeley 10, Calif. (Item 317)

Portable Sound Shelter

A sound shelter now available is designed to serve doctors, hospitals and schools where acoustic protection is needed for audiometric testing. This shelter offers satisfactory audiometry in environmental noise to 65 decibels.

Portability of the unit makes it useful for hospital and schools where hearing tests may have to be conducted in different rooms at different times. The device moves on rubber-wheeled, ball bearing, swivel casters.

The unit has a 24 by 24 by 70-in. interior which accommodates a patient in an armchair. It includes a jack panel for audiometer accessories and a glass observation window. Its 1/4-in. plexiglas door closes on magnetic catches. A heavy-duty outside folding shelf is available as an optional accessory.

Maico Electronics, Inc., 21 N. 3rd St., Minneapolis 1, Minn. (Item 318)



New Size Air Filter

Filter holder adapters are available in sizes from 6 x 9 in. to 12 x 12 in. for portable, high-volume air samplers, enabling the machine to collect large samples of air for quick testing.

The sampler measures particulate matter 1/100th of a micron in diameter indoors and out. A turbine blower enables it to draw in large volumes of air quickly. The device is useful in detection and measurement

of smoke and smog, air hazards in mines, occupational dusts, factory health conditions as well as radioactive particles.

The standard 4-in. diameter filter holder will continue to be available.

The Staplex Co., 777 5th Avenue, Brooklyn, N. Y. (Item 319)

Rubber Runners



The illustration shows "windshield wiper action" provided by the "V" rib design featured in the Shad-O-Rug and Cross-Rib Runner.

Cross-Rib Runner. The heavy-duty blades flex enough to scrape dirt and grime off shoes. The dirt falls between the ribs where it can be cleaned out.

These 1/4-in. live rubber runners are suggested for use in entrances, corridors and aisles. The "V" rib design in Shad-O-Rug and Cross-Rib Runner also provides an effective slip resistant surface. Both runners are available in red, green, tan, black, white and grey. **Wear Proof Mat Co., 2156 W. Fulton St., Chicago, Ill. (Item 320)**



Portable Electric Can Crusher

A portable electric can crusher unit has a safe, short-stroke jaw action and handles any size, including gallon cans.

Plug the cord into an a.c. outlet. The device is powered by a 3/4 h.p. single phase motor.

Rescor Ind., Div. of C. Q. Sherman Assoc. Inc., Bar Building, Mount Vernon, N. Y. (Item 321)

Safety Shields

Safety shields are on the market for welding and grinding operations and for use as machine curtains or partitions.

Combining light weight, compactness, and easy assembly, these shields are available in four sizes ranging from 18 to 36 in. in height and from 42 to 72 in. in overall length. They are made in three sections and can be assembled or taken apart in three minutes.

Construction is of tubular steel with a black oxide finish. Connecting rods are inserted into the open ends of uprights to form the frame. The curtains are fastened to the frame with heavy snap fasteners. The curtains are of heavy olive drab duck with flame-resistant finish. They are guaranteed water- and mildew-resistant.

National Cylinder Gas Co. Div. of Chemetron Corp., 840 N. Michigan Ave., Chicago 11, Ill. (Item 322)



Straddle Reel Carrying Dolly

A straddle-type reel carrying dolly can be used on any kind of line stringing operation. Model 6100 HLRC Pengo reel carrier

will take any reel up to 46 in. wide by 84 in. in diameter and weighing to 5 tons. It is self-loading by a manually operated hydraulic system.

This unit has the front tow hitch for towing behind truck or tractor, with or without winch. A smaller unit of similar design is available.

Petersen Engineering Co., Inc., 460 Kifer Road, Santa Clara, Calif. (Item 323)



High Visibility Garments

Reflective yellow color reportedly is used for the first time in Hi-Glo coats and overalls.

The manufacturer will stencil, to order, any company or department name in contrasting red. This garment is said to withstand a variety of *mild* acids and chemicals, making

it suited for outdoor work where chemical hazards are added to normal weather exposure.

These garments withstand laundry punishment and are claimed to be lightweight, self-extinguishing and abrasion resistant. This clothing has armored seams for liquid-tight protection at points of vulnerability.

Standard Safety Equip Co., 431 N. Quentin Road, Palatine, Ill. (Item 324)

Remote Indicating Scale

A remote indicating crane scale provides another approach to over-head crane scale weighing by weighing and handling material in one operation and providing convenient, accurate readability in a compact system.

The load element and indicator are separate units connected by up to 50 ft. of flexible double wire braid hose. The load element can be picked up by a crane hook to any reasonable height. The indicator can be mounted at eye level where the operator can accurately read any load applied to the hook of the element.

The element of this crane scale provides automatic self-alignment under tension (up to 4 degree misalignment will not affect indication). This unit has a high safety factor (minimum five times rated capacity). It has 360 degree calibration, a 25 per cent tare adjustment, on a space saving 12 in. dial. The dial pointer can safety travel an overload margin of 90 degrees beyond dial capacity.

This remote indicating crane scale uses the design of the basic Sensater Cell. The scale is calibrated and sealed at the factory and requires no outside power source. The system is available in 1,000 to 60,000 lb. capacities.

Martin-Decker Corp., 3431 Cherry Ave., Long Beach 7, Calif. (Item 325)



Metatarsal Guard

A metatarsal guard has been designed to supplement protection provided by steel toe safety shoes.

It attaches through the laces of the shoe. No bulky or hazardous attachments go under or around the foot. There is no interference to the flexing of the ankle, whether walking, bending, stooping or climbing.

The guard fits all sizes of high and low shoes. There are no rights or lefts. The one guard is universal for lace-type shoes.

Made of stainless steel, the guard is padded with a cushion of closed cell neoprene sponge. There is also a web tightening strap.

Albert Pendergast Co., 6913 Tulip St., Philadelphia, Pa. (Item 326)



Industrial Wheel Stretcher

An industrial wheel stretcher has been designed for the first aid department of industrial plants.

Features include: balloon-type pneumatic tires on ball bearing wheels, a 26 3/4 in. x 74 in., 19-gauge steel litter top with rubber bumper surrounding the edges. A 1 in. air foam pad and pair of restraining straps are provided.

The top may be removed from welded 1 1/8-in. tubular frame and set on the floor on its 2-in. legs. This permits easier placement of patient on a litter following an accident.

Hausted Div. of Simmons Co., Medina, Ohio (Item 327)



Safety Belt

A construction belt designed for high workers reportedly eliminates body injury caused by the shock load resulting from a fall. The shock load is divided between the chest and the waist, reducing dangers of injury from impact and of slipping out of the belt.

The chest part of the belt may be worn loosely to permit easy breathing. The waist part should be worn snugly. The belt weighs 2 lbs.

Rose Mfg. Co., 2700 W. Barberry Place, Denver, Colo. (Item 328)



Automatic Safety Light

A light that turns on automatically when electric power fails has been developed. Astro-Lite, designed for home or commercial use, helps prevent accidents, panic or pilfering during power failures.

Made in four colors, this light looks like a small portable radio and is made of shatterproof styrene. It measures 6 1/2 by 8 in., can be hung on a wall or rested on table, and plugs into any wall fixture or electrical outlet.

Astronautics Engineering Corp., 500 W. 18th St., Hialeah, Fla. (Item 331)

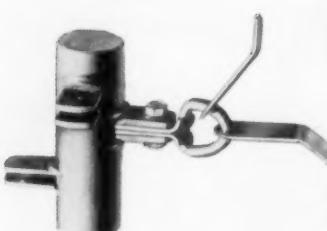


New Portable Inhalator Units

Five new portable Oxy-Lyfe inhalator units have been developed. These units offer durations from 30 minutes to 2 1/2 hours. Features are cylinders available in three different sizes and a face mask designed for comfort.

Oxy-Lyfe inhalator units are refillable and are available at surgical and dental supply houses and drug stores. Each comes in durable, luggage-type case.

Oxy-Lyfe Corp., 3232 Archer Ave., Chicago 11, Ill. (Item 329)



Ring Mounted Mower Knives

Available for all Mott Hammer-Knife mowers, the new ring mounted knives swing sideways as well as backwards and forwards.

Bolting the ring retainers between the standard Mott cutter shaft lugs provides greater lug strength and resistance to fatigue in even the roughest cutting.

Wider than standard Mott cutting knives, the ring mounted units concentrate weight farther from center of rotation for greater cutting authority. Ring mounted knife package includes retaining clips, rings, bolts, lock nuts, blades, and a ratchet wrench for installation.

Mott Corp., 4015 Eberly Ave., Brookfield, Ill. (Item 330)

Flameproof Chemical for Textiles

A flameproofing chemical for treatment of textiles containing acetate rayon fibers has been announced.

This product reportedly is the only known chemical that will flameproof fabrics such as acetate rayon, Celanese, nylon, as well as mixed fibers such as acetate rayon and cotton, acetate rayon and linen.

Flamort-“U” is colorless, and will not affect the tensile strength of any material to which it is applied. It is available in concentrated form in 12-, 15-, 21-, 51-, 99- and 198-lb. drums, or in 1- and 5-gal. cans and 55-gal. drums.

The concentrate is dissolved in water at the rate of 3 lbs. of Flamort-“U” to 1 gal. of water, and is applied by spraying or immersion. Treatment is permanent, but fabrics require re-treatment after laundering. One gallon of this solution will treat about 100 sq. ft. of heavy material, or up to 200 sq. ft. of lightweight fabric.

A 3-lb. sample of this product may be obtained free when requested on your firm's letterhead.

Flamort Chemical Co., 746 Natoma St., San Francisco 3, Calif. (Item 332)



Disposable Plastic Gloves

Disposable moistureproof polyethylene gloves have many uses in industry as well as in the home. Light and pliable, they permit maximum touch sensitivity while protecting the hands.

When the job is done, pull off the gloves . . . inside out so dirt and mess are trapped inside . . . and deposit them in the nearest trash can.

The Wilson Rubber Co., 1200 Garfield Ave., S. W., Canton 6, Ohio (Item 333)

NEWS ITEMS



The Wilkins Co., Inc.

May marks the 20th anniversary of service to eye-safety programs by Ralph R. Wilkins, president of The Wilkins Co., Inc., Cortland, N. Y., manufacturer of liquid lens cleaning products.

Fendall Company

Fendall Company, manufacturers of face and eye protection equipment, has moved to new quarters at 2222 Diversey Blvd., Chicago 47, these facilities are said to more than triple the firm's previous manufacturing capacity and provide increased general office area.

Correspondence should go to the new address. The new phone number is EVerglade 4-1100.



J. L. Fried

Walton-March

Jeffrey L. Fried has announced the partnership of Walton-March, Highland Park Ill., has been dissolved and he has assumed sole ownership. Walton-March is the manufacturer of Ice-Foe, Waste-Mobile, and Non-Slip Coating.

Oxy-Catalyst Inc.

Oxy-Catalyst, Inc., Devon, Pa., manufacturer of catalyst exhaust purifiers, has appointed Freeman Equipment Co. of Miami as the Florida representative for their line of purifiers for gasoline, LP gas and diesel powered industrial vehicles.

The Freeman Co., with sales and service offices in Jacksonville, Miami and Lakeland has been in the material handling and industrial plant equipment field for many years.



L. L. Battis

Globe Industries Inc.

Max Isaacson, president of The Globe Industries, Inc., has announced appointment of Laurens L. Battis as eastern regional sales manager by Globe's Special Products Division at Dayton, Ohio. Mr. Battis will be headquartered in Kinnelon, N. J. His responsibilities will include application engineering of resuscitation and breathing protection equipment. He will also develop and train distributors of the firm's products.

Welsh Mfg. Co.

Welsh Manufacturing Co., Providence, R. I., manufacturer of industrial and welding safety products, has opened new southwest warehouse facilities at 142 Howell St., Dallas, Tex.

Earl Mitterleiner will be resident manager of this second Welsh regional warehouse. Another Welsh warehouse is located at 788 Mission St., San Francisco.



B. Sebstad

Ansul Chemical Co.

Ansul Chemical Co., Marinette, Wis., announces the appointment of James A. Bowman as advertising and sales promotion manager. Mr. Bowman succeeds Brad Sebstad, who has resigned to establish his own advertising agency, Brad Sebstad, Inc., in Menominee, Mich. Mr. Sebstad will serve clients throughout the Midwest, including Ansul.

Mr. Bowman served as a reporter and copy editor for the *Milwaukee Sentinel* before joining Ansul in 1952. He has been assistant advertising manager for the past five years. Mr. Sebstad has been with Ansul since 1949. Both are veterans of World War II and graduates of the University of Wisconsin.



J. A. Bowman

Record Industrial Co.

New representative for the Record Industrial Co. is Robert M. Roth, who has had 20 years of shoe experience including industrial safety shoes and dress shoes. He will be responsible for the firm's line of Rico and Guard Aire safety shoes in the Chicago area.



R. M. Roth

Flamort Chemical Co.

Dr. Walter R. Hearst, president and founder of Flamort Chemical Co., died March 20. Mrs. Gabrielle M. Hearst has been elected president. The research and chemical staff will remain unchanged.



R. G. Ashbaugh

Elkhart Brass Mfg. Co.

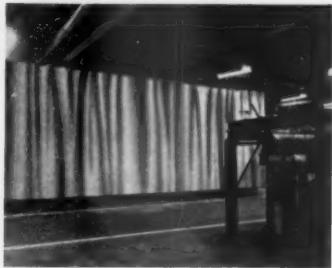
R. G. (Pete) Ashbaugh is now president of Elkhart Brass Mfg. Co., Elkhart, Ind. E. H. Hansen is the new board chairman of this fire protection equipment supply firm.

Circle Item No. 118—Reader Service Card

HEAT REFLECTIVE CURTAINS

of ALUMINIZED GLASS CLOTH

This lightweight (13 oz. per sq. yd.) material has a reflective efficiency of 95% against radiant heat. These rugged curtains have exceptional tensile strength and are not affected by most acids and chemicals. Material is non-absorbent. Oils, dirt and greases wipe or wash off the surface. There is no rot or mildew—nor does the material deteriorate with age.



Fynepel can fabricate into any size or shape desired—curtains can be hung or removed in seconds. Personnel can easily push it aside or pass under with ease if necessary. High heat operations that affect the work of personnel or mechanical controls can be easily isolated and controlled. In heat treating or repairs to equipment where the retention of heat is essential, this material has particular appeal. Why not consult us now on your particular problem. We have at least a partial answer to most high heat problems. Write, wire or phone

FYNPEL PRODUCTS INC. Box 503, Dept. N NEWARK, OHIO

SLIP-ON GUARD



GETS-A-LITE GUARD and GUIDE

Quickly and Easily Installed
by Anyone—No
Tools Needed!

- Simply slip GETS-A-LITE GUARD AND GUIDE over the fixture, as illustrated.
- Made of indestructible spring steel wire. Nothing to break, get out of order or replace. Will last indefinitely.
- Once installed, GETS-A-LITE GUARD AND GUIDE is NEVER removed.
- Nothing to unlock, fuss with or lock, when changing lamps.
- GETS-A-LITE GUARD AND GUIDE actually steers lamp into socket enabling maintenance man to change lamp in 10 seconds!
- Available for 40 watt and 100 watt fluorescent lamps.

GETS-A-LITE CO.—Dept. NSN-560
3865 N. Milwaukee Ave., Chicago 41, Ill.

186 Circle Item No. 119—Reader Service Card

Water Plants Remove Most Radioisotopes

Municipal water plants, though not designed for the purpose, can remove a substantial fraction of radioisotopes from water they process, studies at the Hanford Atomic Laboratories indicate.

Robert L. Junkins, General Electric engineer at Hanford, reported to the recent Nuclear Congress in New York on a year's sampling of the Pasco municipal water system filter plant 39 miles below Hanford nuclear reactors. General Electric, which operates Hanford for the Atomic Energy Commission at Richland, Wash., conducts this sampling as part of an environmental monitoring program to provide guidance in the control of plant operation practices and to assure the release of atomic wastes in the area is well within recognized limits.

Hanford's reactors use some Columbia river water for cooling purposes. Effluent from the reactors, when discharged into the river, contains several radioisotopes generated during its quick pass through the reactors. Columbia river water at Pasco contains about 15 per cent of the maximum concentration of radioisotopes permitted by national radiation health authorities. After treatment in the Pasco filter plant, Junkins said, the 15 per cent of the permissible concentration is reduced to about five, even though this plant was not designed for this purpose.

The plant's efficiency in removal of radioisotopes varies with the seasonal demand for water. It is least efficient during summer months when the water plant is operating near capacity and there is less time for radioactive decay as the water passes through the treatment plant. However, this corresponds with the highest flow rate of the Columbia river when the effluent from the reactors is diluted most by increased water from the mountain snow melt.

Some of the radioisotopes are removed by sedimentation and filtration. Solid wastes from these sources are periodically removed by flushing. Because of radioactive decay, there is little accumulation of radioisotopes in these solids or elsewhere in the plant.

Circle Item No. 120—Reader Service Card

NOW

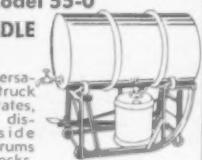
... The Easiest One-Man
Drum Moving Ever!

MORSE Model 55-0

DRUM CRADLE TRUCK

Low-cost and versatile, this cradle truck carries . . . rotates, manually . . . dispenses. Has side opening for drums with side drain cocks.

Long wheelbase and retractable castor frame gives exceptional stability under load. For 55 and 110 gal. drums. Circle this product for literature and prices.



MORSE Model 150-R

DRUM HAND TRUCK

One man can pick up a 1,000 lb. load . . . and balance it with one finger. Model 150-R features rubber tired wheels with ball bearings for quiet, easy rolling. Permits precise positioning of loaded drums. For drums 24" to 45" high and with diameters from 15". Sturdy steel construction. Circle this product for literature and prices.



Clip this ad to your letterhead



MORSE
MANUFACTURING CO., INC.

765 West Manlius Street, East Syracuse, N.Y.



VENT-A-DRUM AUTOMATIC SAFETY VALVE

Get around-the-clock protection against explosion caused by fires near drums where flammable liquids are stored. Vent-A-Drum installed automatically allows air to enter or escape, controls pressure build-ups by safely jetting fuels in event of sudden temperature changes. Vent-A-Drum pays for itself by reducing evaporation 50%. Precision engineered, never requiring adjustment! Approved by Factory Mutual Testing Laboratories. Thousands in continuous service throughout industry.

WRITE FOR COMPLETE LITERATURE

CENTRAL Safety Equipment Company
6613 MARSDEN ST. PHILA. 35, PA.

Circle Item No. 121—Reader Service Card

TRADE PUBLICATIONS

These trade publications will keep you up-to-the-minute on new developments in safety equipment and health products. All catalogs are free, and will be sent without obligation. Just circle publication number on the Reader Service Postcard.

Safety Equipment

Wilson Products Division, Ray-O-Vac Co., 212 E. Washington Ave., Madison 10, Wis., announces a new descriptive catalog showing the firm's complete line of industrial personal protective equipment. This catalog is divided into four sections: (1) eye protection; including spectacles, goggles and shields, and welding goggles and helmets; (2) respiratory; (3) hearing; (4) head. There are detailed product descriptions showing individual components and parts and descriptive charts recommending specific safety equipment for each hazard. Particular attention is paid to eye protection equipment, lens properties and materials, and frame construction.

For more details circle No. 400
on enclosed return postal card.

Dockboards

Hamerslag Equipment Co., 110 Freeway Blvd., South San Francisco, Calif., announces the availability of a new descriptive catalog describing their line of Hesco dockboards. This literature describes the new Hesco AD drop pin, which automatically positions the dockboard between the rail and the dock. A selection chart permits the user to easily select the proper length dockboard for his particular operation.

For more details circle No. 401
on enclosed return postal card.

Linemen's Protective Equipment

A new illustrated catalog for use in public utility and industrial electrical fields has been published by Charleston Rubber Co. of Charleston, S. C. The catalog describes and illustrates CHARCO products, gives clear instructions as to proper care and use of high voltage rubber protective equipment. The catalog also lists valuable informative technical reports available free from the company, including the free 18 x 22-in. glove care poster, and includes a glove selector chart, ordering instructions, and the latest price list. Among CHARCO products featured are the FLEX-SAF and FLEX-FIT linemen's high voltage protective rubber gloves and sleeves, including FLEX-SAF "Contour Cuff" Gloves; "Red 'N' Black" Gloves and Sleeves, and "Curved Hand" Gloves. CHARCO low voltage gloves; glove protectors and inner-liners; danger flags, flag standards, and other products for safety.

For more details circle No. 402
on enclosed return postal card.

Crane and Hoist Control Instrument

Bulletin H-21 illustrates and describes the HYDRA-SET auxiliary Crane and Hoist Control Instrument. Complete with application photographs and descriptions, illustrations of the various functions of the HYDRA-SET, and a discussion of the instrument's operation and general specifications are included. The HYDRA-SET is a closed-circuit, hydraulically-operated instrument that installs between any crane hook and the load. It requires no external power to operate and will raise or lower

loads up to 100 tons a distance of 12 in. with accuracy to within 1/1,000th of an inch. Mefco Sales and Service Corp., 131 N. Fifth Ave., Arcadia, Calif.

For more details circle No. 403
on enclosed return postal card.

Concrete Floor Repair

How hard, strong, tough, nonshrinkable repairs can be made to cracks, holes, and ruts in concrete floors is outlined and illustrated in this Master Builders Company publication, Bulletin EPMM-4. The seven-step procedure for repairing damaged floors using Embeco pre-mixed mortar is covered with complete explanations and photos of each step in the operation. Actual strength comparisons between plain mortar and Embeco pre-mixed mortar are also included. The Master Builders Co., Cleveland 3, Ohio.

For more details circle No. 404
on enclosed return postal card.

Liquid Cleaner

Kelite Formula 28, U. S. Patent No. 2381124, a multipurpose liquid cleaner, is described in Bulletin No. P-12591. The bulletin describes how Kelite Formula 28 removes grease, oil, ink, soot, dirt, light carbon, and similar deposits from hard surfaces without heat, fumes, or fire hazard. It is used safely, at room temperature, by spray, wipe-on or immersion method, on commonly used metals, plastics, Plexiglass, rubber, porcelain, wood, and painted surfaces. As well as being a machinery equipment cleaner and building maintenance supply, it is used as a preliminary degreaser prior to alkaline cleaning and before pre-spot-weld etch. Kelite Corp., 81 Industrial Rd., Berkeley Heights, N. J.

For more details circle No. 405
on enclosed return postal card.

Pendent Safety Switches

An 8-page illustrated bulletin describes in detail nine new pendent switches for electric hoist control. Safety and minimum maintenance are the principal features of these switches, which are encased in corrosionproof, shock-resistant, watertight Hycar synthetic rubber. Switches are available with two, four or six buttons, with one and two speed control and in a choice of snap-in aluminum legends. Information is also provided on the Joy line of toggle and other types of molded-to-cable switches. Joy Mfg. Co., Electrical Products Div., 1201 Macklind Ave., St. Louis 10, Mo.

For more details circle No. 406
on enclosed return postal card.

Face Shields

Bulletin No. S-9033 illustrates and describes AO Face Shields. Featured is the new "Kool-Vent" face shield recommended for hot operations, or any operations where a man wants the best combination he can get of vision and ventilation.



A combination germicide-detergent for cleaning respirators, goggles, helmets, as well as face shields, is featured. Also a super-clear lens cleaner and anti-fog fluid for cleaning safety lenses, face shields, and plates is featured. American Optical Co., Safety Products Div., Southbridge, Mass.

For more details circle No. 407
on enclosed return postal card.

Wheel Chocks

Bulletin tells how wheel chocks provide safe and effective blocking of all rolling stock and are used by railroads, industry, and shippers and receivers of carload freight. They are available in several styles to accommodate individual application. They can be instantly attached and removed, and no tools are required. They are equipped with rail biting tool steel spurs. Standard finish in railroad maintenance-of-way yellow. The Aldon Co., 3338 Ravenswood Ave., Chicago 13, Ill.

For more details circle No. 408
on enclosed return postal card.

Nitrogen Dioxide Detector

Bulletin No. 0005-4 describes the new M-S-A nitrogen dioxide detector. Complete details are provided on the portable instrument, including widespread application to industrial processes where very low concentrations represent a severe health hazard. The detector employs a rubber bulb to aspirate a sample through a break-tip tube, which is filled with an impregnated chemical. A color change results, the length of which is proportional to the concentration of nitrogen dioxide. Step-by-step operation of the detector is outlined in the bulletin, including instructions for sampling from remote locations. Mine Safety Appliances Co., 201 N. Bradock Ave., Pittsburgh 8, Pa.

For more details circle No. 409
on enclosed return postal card.

Fire Protection System

The Notifier Corp., 3700 N. 56th St., Lincoln 4, Nebr., has made available a new Bulletin No. A. I. A. File 31-1-31, describing automatic fire protection systems. Illustrated are detection and alarm systems, control equipment, and coding and recording equipment.

For more details circle No. 410
on enclosed return postal card.

That They May Live

"That They May Live" is a dramatic teaching film, which presents latest advances in training methods of direct artificial respiration and their practical application in saving lives of suffocation victims. The 16mm motion picture is in full color and sound. Bulletin gives full details. Pyramid Film Producers, Ltd., 7166 Melrose Ave., Hollywood 46, Calif.

For more details circle No. 411
on enclosed return postal card.

Welding Equipment Catalog

A new 28-page catalog (No. 36) published by Sellstrom Mfg. Co., Palatine, Ill., describes and illustrates their complete line of eye and face protection equipment. The brochure gives fully illustrated descriptions on all goggles, glasses, helmets, face shields, lenses, respirators, and other products.

For more details circle No. 412
on enclosed return postal card.

Time Recording Equipment

You can eliminate time leaks and increase the efficiency of all departments with these payroll recorders, time recorders, watchman clocks, daters, and time stamps, all described in a catalog available from Lathem Time Recorder Co., 76-3rd St., N. W., Atlanta 8, Ga.

For more details circle No. 413
on enclosed return postal card.

Fire Service Ladders

The new 24-page bulletin available from Duo-Safety Ladder Corp., 513 W. Ninth Ave., Oshkosh, Wis., describes aluminum and wood ladders for fire fighting use. Of particular interest to fire fighting and emergency crews will be the section on "Ladder Facts" and complete specifications on the new Series 1200 Ladders for service trucks.

For more details circle No. 414
on enclosed return postal card.

Rids Hands of Grease and Grime

Go-Jo Hand Cleaner is a powerful antiseptic that protects against industrial dermatitis, yet contains soothing emollients to prevent skin drying. It is ideally suited for use in plants and workshops. Go-Jo dispensers will save time and reduce clean-up costs. Gojer, Inc., Box 991, Akron 9, Ohio.

For more details circle No. 415
on enclosed return postal card.

Rust and Corrosion Control

This new 38-page systems catalog No. 259 provides comprehensive treatise on rust and corrosion control by protective coatings with accent on color. Highlights are the Rust-Oleum New Color Horizons System, a gate-fold spread that unveils 67 actual color standards in the system, and 76 full-color applications and 110 color chips to show actual colors at a glance. Rust-Oleum Corp., 2799 Oakton St., Evanston, Ill.

For more details circle No. 416
on enclosed return postal card.

Wooden Sole Safety Shoes

A brochure that illustrates wooden sole safety shoes of various types for factories, foundries, steel mills, and oil refineries. Also shows waterproof boots, acidproof shoes and strap-on soles. Reece Wooden Sole Shoe Co., Inc., Columbus, Nebr.

For more details circle No. 417
on enclosed return postal card.

Ladder Catalog

A brochure illustrating ladders and accessories for use in stores, offices, and factories. Rolling ladders, wheels, and brakes are featured. I. D. Cotterman, 123 W. Spring Ave., Naperville, Ill.

For more details circle No. 418
on enclosed return postal card.

Modern Lens Cleaning

An illustrated bulletin showing methods of cleaning goggles and glasses by use of special cleaning fluid and tissues. Promotes safety through better vision. Also increases efficiency and production. Wilkins Co., Inc., Cortland 1, N. Y.

For more details circle No. 419
on enclosed return postal card.

Anti-Skid Floors

Bulletin No. AL-SI containing information and data about abrasive rolled steel floor plating, which promotes safety by reducing floor hazards. Illustrates how many different ways this type of flooring

may be used. Approved by Underwriters' Laboratories. Alan Wood Steel Co., Conshohocken, Pa.

For more details circle No. 420
on enclosed return postal card.

Linemen's Equipment

Catalog No. 54-S gives full details on linemen's safety equipment, and proper way to use it. Describes full and complete line from which to choose. W. M. Bashlin Co., Grove City 3, Pa.

For more details circle No. 421
on enclosed return postal card.

Eye Safety

Complete information in catalog form is presented on eye safety wear. Presents various types and sizes of goggles and glasses, together with information on where to use for best results. Chicago Eye Shield Co., 2705 W. Roscoe St., Chicago 18, Ill.

For more details circle No. 422
on enclosed return postal card.

Color Dynamics

Illustrated booklet explains how the proper use of color in plants can be the direct cause of more production, less absenteeism, lower insurance rates, and better morale among employees. Also demonstrates how greater safety is also attributed to color harmony. Pittsburgh Plate Glass Co., Paint Div., Pittsburgh 2, Pa.

For more details circle No. 423
on enclosed return postal card.

Marking Devices

Bulletin describes various styles of safety marking devices, and use for which each is best. Made to prevent spalling and mushrooming, and to give long service, markers may be used for many different jobs such as marking, forging dies, giving reproductions from plastic and glass, and rubber molds. M. E. Cunningham Co., 1053 Chateau St., Pittsburgh 33, Pa.

For more details circle No. 424
on enclosed return postal card.

Safety and Speed in Soldering

A pamphlet containing data on adjustable soldering iron holders. Helps promote safety by use of holder, can reduce man-hours lost because of burns and possible fire. Helps operator work more efficiently and at greater speed. Wilder Mfg. Co., Inc., Port Jervis, N. J.

For more details circle No. 425
on enclosed return postal card.

First Aid

Bulletin 338 presents line of first aid products for use in plants, factories, or for use in homes. Sets forth many different kinds of emergency first aid equipment including compounds for burns, bandages, and other information to promote safety through first aid. Davis Emergency Equipment Co., Inc., 55 Hallect St., Newark 4, N. J.

For more details circle No. 426
on enclosed return postal card.

Safety Shoes

Catalog illustrates a complete line of steel-toe safety shoes in styles including dress oxfords; bluchers; oil-resistant styles; work shoes with leather, cord, composition and vul-cork soles; molder's shoes, boots, hicks, and rubber footwear. Iron Age Safety Shoe Div., H. Childs & Co., 1205 Madison Ave., Pittsburgh 12, Pa.

For more details circle No. 427
on enclosed return postal card.

Safety Cans and Safety Lights

Catalog of 16-pages lists and illustrates a complete line of safety gasoline cans, oily waste, and safety filling cans, as well as safety flashlights, lanterns, railroad lanterns, electric headlights, carbide lamps, and soldering sets. Justrite Mfg. Co., 2801 N. Southport Ave., Chgo. 14, Ill.

For more details circle No. 428
on enclosed return postal card.

Accident Prevention Signs

A catalog showing a complete line of signs for accident prevention use. Eye, machine, electrical, directional, first aid, reflectorized and traffic signs are illustrated. Stonehouse Signs, Inc., 9th & Larimer Sts., Denver 4, Colo.

For more details circle No. 429
on enclosed return postal card.

Safety Plate

Booklet describing 4-way floor plate with raised lug pattern providing firm anti-slip traction, for use wherever slipping hazards exist, and on all walkaway surfaces. Inland Steel Co., 30 W. Monroe St., Chicago 3, Ill.

For more details circle No. 430
on enclosed return postal card.

Tools

Catalog shows tools for linemen, electricians, and mechanics. Pliers, splicing clamps, linemen's climbers, belts, safety straps, leather goods, tool pockets, tackles, and hand lines are among the many items illustrated. Mathias Klein & Sons, Inc., 7200 McCormick Rd., Chicago 45, Ill.

For more details circle No. 431
on enclosed return postal card.

Treat Asphyxia More Effectively

Folder G-10 shows how you can do a better resuscitation job in cases of smoke, suffocation, gas poisoning, electric shock, drug poisoning, carbon monoxide, coma, asthma, and drowning. Stephenson Corp., P. O. Box 392, Red Bank, N. J.

For more details circle No. 432
on enclosed return postal card.

Safety Feeder

A new circular describing a safety feeder device that provides a vacuum by passing compressed air through a venturi. When used to hand-feed small parts into presses, the operator's hands never reach the danger area. F. J. Little Machine Co., Vac-U-Motion Div., 4165 N. Ravenswood Ave., Chicago 13, Ill.

For more details circle No. 433
on enclosed return postal card.

Industrial Maintenance Equipment

A booklet on a system of industrial floor maintenance that speeds up production. Contents cover dry scrubbing, dust control, refinishing, and maintaining of floors. Every model completely U. L. listed for use in Class I, Group D and Class II, Group G hazardous locations. Hild Floor Machine Co., 1217 W. Washington Blvd., Chicago 7, Ill.

For more details circle No. 434
on enclosed return postal card.

Soap and Soap Equipment

A booklet that covers soap and soap equipment for industrial washrooms. Soaps for every requirement, apparatus, equipment, dispensers, paper towels, and cabinets are described. West Chemical Products, Inc., 42-27 West St., Long Island City 1, N. Y.

For more details circle No. 435
on enclosed return postal card.

Fire Hazard Index

Randolph Laboratories, Inc., 1445 Frontage Road, Northbrook, Ill., has made available a fire hazard index, listing equipment safeguards for 580 typical fire hazards.

For more details circle No. 436
on enclosed return postal card.

Safety Shoes

Catalog lists safety shoes and boots in styles for almost every industrial need, including executive styles, women's moccasins, athletic type work shoes with oil-resistant soles and medium weight work shoes. Lehigh Safety Shoe Co., Emmaus, Pa.

For more details circle No. 437
on enclosed return postal card.

Sling Chains

A booklet on the care, use, and inspection of sling chains. It shows alloy steel chains, and the importance of such service and safety features as ductility, high strength, weight, hardness, link design, and long life. Columbus McKinnon Chain Corp., Tonawanda, N. Y.

For more details circle No. 438
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Safety Belts

A folder on safety belts with a shock absorber of chemically treated nylon that stretches to several times its length. When a man falls, it becomes part of the life line and stretches, cushioning his fall. Rose Mfg. Co., 2700 W. Barberry Place, Denver, Colo.

For more details circle No. 439
on enclosed return postal card.

Lunchroom Equipment

A catalog on lunchroom and restaurant stools, tables, bases, and other allied equipment, for industrial dining rooms, hospitals, institutions, and schools. New colorful tops in Formica, stainless steel, Cafolite or edge grain maple. Chicago Hardware Foundry Co., 10109 Commonwealth Ave., North Chicago, Ill.

For more details circle No. 440
on enclosed return postal card.

Abrasive Paint

Three main features on nonslip abrasive paint—application, adaptability, and economy, are described in a bulletin for controlling dangerous slipping problems in plants and buildings. Frost Paint & Oil Corp., 1209 N. E. Tyler, Minneapolis 13, Minn.

For more details circle No. 441
on enclosed return postal card.

Keep Plant Air Clear of Fumes

Bulletin No. 37-E describes fume collectors that draw smoke, fumes, and heat away at the source by high-velocity exhaust hoods, before they rise and spread throughout the shop atmosphere. Ruemelin Mfg. Co., 3885 N. Palmer St., Milwaukee 12, Wis.

For more details circle No. 442
on enclosed return postal card.

Protective Equipment

A catalog of protective equipment and safety products illustrates and describes new and improved goggles, spectacles, helmets, face shields, lenses, plates, and other items. American Industrial Safety Equipment Co., 3501 Lakeside Ave., Cleveland 14, Ohio.

For more details circle No. 443
on enclosed return postal card.

Safety Data File

Wagner Sign Service, Inc., 356 S. Hoyne Ave., Chicago 12, Ill., has made available a safety data file on potent safety promotion. The manual tells how regularly changed messages on a Wagner Enduro-namel Changeable Copy Display can improve your safety program quickly.

For more details circle No. 444
on enclosed return postal card.

Material Handling Devices

Catalog C-2 illustrates over 25 material handling devices. Information on types of forgings and their facilities, where and how to use, data on turnbuckles, clevis nuts, drop forged shackles, and eye bolt sizes and dimensions. Merrill Brothers, 56-28 Arnold Ave., Maspeth, N. Y.

For more details circle No. 445
on enclosed return postal card.

Steel Rolling Doors

A catalog illustrating steel rolling doors and grilles with quick, easy operation, great durability, neat appearance, are economical and space-saving, and offer such advantages as fire, weather, and burglar protection and maximum safety. Kinnear Mfg. Co., Fields Ave., Columbus, Ohio.

For more details circle No. 446
on enclosed return postal card.

Illuminated Display Board

Brochure on a changeable-letter illuminated display board that is easy to read and change and used to display all types of safety and plant activities and other messages. A flashing signal and neon effect border draws attention to messages displayed. A. C. Davenport and Son, Inc., 311 North Des Plaines St., Chicago 6, Ill.

For more details circle No. 447
on enclosed return postal card.

Industrial Gloves

Bulletin on synthetic rubber gloves with maximum wearing qualities, gripping action in liquids, resistance to all acids, chemicals, and solvents. Surely Rubber Co., Carrollton, Ohio.

For more details circle No. 448
on enclosed return postal card.

Air Control Products

Booklet describing air control products such as air cylinders, valves, pressure regulators, air line couplers, hose, fitting reels, press controls, blow guns, air ejection sets, and hydraulic gauges. A. Schrader's Son, 452 Vanderbilt Ave., Brooklyn 38, N. Y.

For more details circle No. 449
on enclosed return postal card.

Beryllium-Copper Tools

Catalog shows a long list of beryllium copper tools for safety and marine use wherever there is a hazard of fire or explosion. Beryllium Corp., Reading, Pa.

For more details circle No. 450
on enclosed return postal card.

Washfountains

Catalog No. 6002 contains details and washroom specifications on washfountains that serve 8 to 10 workers simultaneously. Sanitary features of the washfountains are foot control of water, faucets, replaced by sprayhead, and self-rinsing bowl. Bradley Washfountain Co., 2237 W. Michigan St., Milwaukee 1, Wis.

For more details circle No. 451
on enclosed return postal card.

Resuscitators for Industry

A brochure on resuscitators that are easily operated to save life from smoke, suffocation, electric shock, heart failure, fume poisoning, asphyxia, emergencies, and accidents. J. H. Emerson Co., Cambridge 40, Mass.

For more details circle No. 452
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Guards and Controls

Punch press safety depends largely on the effectiveness of guards and controls. Catalog reviews 10 different types of guards and electric 2-hand controls. These devices, the catalog says, increase production because they're so easy to install and maintain, and last longer because hardened parts are used at all water points. Sergeant Metal Products, Inc., Box No. 101, Mendon, N. Y.

For more details circle No. 453
on enclosed return postal card.

Safety Hook

A safety hook with a device that locks automatically when the load is lifted is among the products reviewed in this new catalog released by Newco Mfg. Co., Inc., P. O. Box 5939, Kansas City 11, Mo. Other fittings listed include pipe bridles, safety swivel hooks, load protectors, sling bridles and saddles, and combination clamps and thimbles.

For more details circle No. 454
on enclosed return postal card.

Respiration Trainer

Mouth-to-mouth resuscitation, generally regarded as the most effective manual method of artificial respiration, cannot be taught correctly without a training aid, says Medical Supply Co. literature. That's why MSC developed the Breathe Life Trainer. With it, the student learns to

give resuscitation under true-to-life conditions, without resorting to actual mouth-to-mouth contact. The device is absolutely sanitary. Medical Supply Co., 1027 W. State St., Rockford, Ill.

For more details circle No. 455
on enclosed return postal card.

Acoustical Ceilings

You can lick noise irritations and strengthen plant fire protection by installing acoustical ceilings. A 35-page booklet issued by Armstrong Corp. Co., 3210 Woodbridge St., Lancaster, Pa., gives details on various acoustical materials. Performance charts on these materials are helpful to the prospective buyer.

For more details circle No. 456
on enclosed return postal card.

Radiation Monitoring Services

Radiation monitoring services offered by R. S. Landauer, Jr., & Co. are described in a new company booklet covering different types of badges and reviewing evaluation and control methods. Safety directors with workers exposed to X rays and radioactivity will be interested in these data. R. S. Landauer, Jr., & Co., 3920 W. 216th St., Matteson, Ill.

For more details circle No. 457
on enclosed return postal card.

Fire-Resistant Fluid

Literature gives details on a fire-resistant fluid that provides lubrication with fire protection. The fluid may be used in any hydraulic system where this type of fluid is needed. Formulated from refined base oil compounded to form a stable water-in-oil emulsion. Sun Oil Co., 1608 Walnut St., Philadelphia 3, Pa.

For more details circle No. 458
on enclosed return postal card.

Revolving Cup Guards

Revolving cup guards for portable tools are described in literature prepared by Morrison Products, Inc., 16816 Waterloo Rd., Cleveland 10, Ohio. The cup guards are described as lightweight durable, and economical and are manufactured in compliance with the American Standard Safety Code.

For more details circle No. 459
on enclosed return postal card.

All-Purpose Cable

Design and performance features of butyl rubber power cable are given in 32-page booklet No. 102, which covers available constructions from 600 to 15,000-volt conductors. Load factor tables are included. Anaconda Wire & Cable Co., 25 Broadway, New York 4.

For more details circle No. 460
on enclosed return postal card.

Industrial Gloves

Seiberling Latex Products Co., has made available a new catalog illustrating their firm grip industrial gloves in a choice of natural rubber or neoprene latex. These gloves are described as tough and durable and feature curved fingers for comfort and fit. Seiberling Latex Products Co., New Bremen, Ohio.

For more details circle No. 461
on enclosed return postal card.

Circuit Breakers

Low-voltage power circuit breakers are subject of Bulletin S-4261-2B, which includes ratings, drawout construction, selection chart, application table, I-T-E Circuit Breaker Co., 1900 Hamilton St., Philadelphia 30, Pa.

For more details circle No. 462
on enclosed return postal card.

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MAY, 1960

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The advertising pages of the News ... your guide to products of importance and help to your plant safety program

Keep up-to-the-minute on all the latest advances in industrial safety products and services through the advertising pages and new safety equipment features in the NATIONAL SAFETY NEWS.

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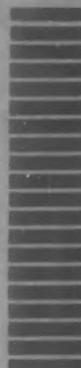
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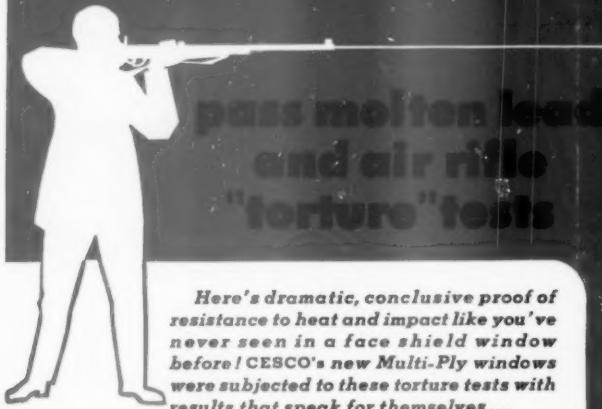
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National Safety News
May, 1960

New

CESCO

MULTI-PLY WINDOWS



**pass molten lead
and air rifle
"torture" tests**

Here's dramatic, conclusive proof of resistance to heat and impact like you've never seen in a face shield window before! CESCO's new Multi-Ply windows were subjected to these torture tests with results that speak for themselves...

TEST NO. 1



A .22 cal. air rifle with a muzzle velocity of 450 ft. per sec. was fired at a .045" Multi-Ply window from a distance of 35 feet. Only a small superficial dent resulted. There was no shattering, no penetration. However, the same gun fired from the same distance pierced .032" Aluminum (24ST3) and .040" Cellulose Acetate regularly used for face shield windows.

TEST NO. 2



A ladle containing 6½ lbs. of 635 degre molten lead was poured on a Multi-Ply window for 45 seconds. Though the hot lead was poured on the same spot, none of it penetrated the window. Under identical circumstances a .040" acetate window melted in 9 seconds after only ½ lb. of lead was poured.

• Heretofore the only way to be assured of increased resistance to heat and impact was to buy a window of increased thickness. But now CESCO Multi-Ply offers you vastly superior protection in one low-priced, volume-produced window—just .045" thick. Multi-Ply is

available in CESCO's six basic face shields—featuring fiber glass crowns and shells—new G-3 Nylanite headgear. Readily interchangeable with hard hats, the G-3 has a broad pivoting cross band adjustable for height and an offset cambered rear headband that's the last word in comfort.



Write for free booklet giving prices and full details about Multi-Ply windows

CESCO FOR SAFETY

CHICAGO FACE SHIELD COMPANY • 2105 West Roscoe Street, Chicago 18, Illinois

Best in Sight...

Wherever Ventilation is Required

This is the face shield that lets workers see well and keep cool at the same time. The clear window portion* is now supplied standard with .040" thick acetate for additional impact protection.

Durable screen portion is 24 mesh. The resultant added ventilation helps a man's skin "breathe" on hot jobs. He'll benefit from any moving air. For operations where extreme impact is a problem, our .060" thickness acetate is recommended. Turnbuckle arrangement on sides of .060" window anchors safely. Back headband of the Kool-Vent is adjustable. For more information write for folder S-9033.

*Smaller than a full size window, it is more economical to replace.

Combines...

- Window plus Ventilation
- High Protection from Impact or Heat
- Window Replacement Economy

RECOMMENDED FOR: Welding, reworking, industrial work, metal sawing, light grinding, lamp inspection, electronic tube inspection, bottling plants, fastening, bottling, furnace operations.



American  Optical
COMPANY
SAFETY PRODUCTS DIVISION
SOUTHBURY, MASSACHUSETTS
Safety Service Centers in Principal Cities

5 x 311 ELSKIN GLOVE



Your Surest Protection...AO SURE-GUARD Products

Circle Item No. BC—Reader Service Card

For the Right Touch on Production Welding ...this AO Elkskin Glove

Very soft, very flexible — for jobs where sensitivity of touch is a must. These gloves reduce hand fatigue and will give plenty of "mileage" despite high temperatures. Montpelier pattern, one-piece back and palm, all welted seams, heavy lining on back, 14" long.

*Always insist on
AO Trademarked
Safety Products.
Your Nearest AO
Safety Products
Representative can
supply you.*

